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REVIEW ARTICLE ***eISSN 2348- 0173***

A CRITICAL REVIEW OF THESIS WORKS DONE ON *RASAKARPURA*

*Corresponding Author

Mehta N. J.
Lecturer & I/c Head,
Dept of Rasashastra & Bhaishajya Kalpana, Shree Gulabkunverba Ayurved Mahavidyalaya, Gujarat Ayurved University, Jamnagar. Email - nekymehta@rediffmail.com

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ABSTRACT:

Rasakarpura is a mercurial preparation in the field of ayurved. It is a *Nirgangha* (without using sulphur as an ingredient) type of *kupipakva* (sublime) metallic preparation. There are different 53 methods for the preparation of *Rasakarpura*. Different opinions about mercuric chloride, mercurous chloride or mixture of both as chemical composition of final product are available in classical books of ayurved. Various types of research works on *Rasakarpura* were also carried out in many institutes of ayurved. Therefore here an attempt was made to compile those MD (Ayu) and PhD works so that some conclusions are drawn to identify the *Rasakarpura* and its chemical composition.

Key Words: *Rasakarpura*, Mercuric chloride, Mercurous chloride, *Rasashastra*

INTRODUCTION

To promote the ayurved many institute are working in the India and also in some other countries of world. One of the efforts to promote the ayurved is research of drugs. Previously physicians were made medicines for their own use on the base of the need of patients and availability of the ingredients. So that many drugs are having many methods of preparation and therefore chemical composition of the final product is found different opinions. Now a day due to advance technology it is possible to identify the structure of the some products in certain level. One of such drug is *Rasakarpura*. Different type of research works regarding preparation method, analytical, toxicological and clinical were carried out in various institute of ayurved. So here an attempt was made to compile those works and due to this effort, may be some conclusion will be drawn on the composition of *Rasakarpura*, which is the main controversial part.

MATERIAL AND METHOD

Total fifty three (53) methods for the preparation of *Rasakarpura* are available in classics of ayurved.[1] Various post graduation and doctorate level research works are done to develop Standard Manufacturing Process (SMP) for *Rasakarpura*. In some of these works it was prepared by different methods and analyses of those samples were carried out by the scholar. Some works were also extended for toxicity study and clinical study. Total twelve (12) M.D. (Ayu) and Ph.D. works are found on *Rasakarpura* from the various institute of ayurved. Those works are concisely presented as below.

Patel A. S. et all[2] has worked on the problem of "*Rasakarpura Nirmana*" in which various classical references were utilized for the preparation of *Rasakarpura*. But the study indicates the failure of many procedures.

H. Yeri Swami et all[3] has prepared *Rasakarpura* for 28 times. In which 21 were performed according to reference of *Rasa Tarangini*, 2 were prepared by method of commentator Pandit Haridattta Sastry of *Rasa Tarangini* book (by changing the ratio of *Parada* and *Gandhakamla*-sulphuric acid i.e. 1: 0.5) and remaining 5 were performed by following different references. There was no final product by using method of *Rasachintamani* due to failure of practical. Other samples were analyzed for the chemical structure of final product. They found that *Rasakarpura* prepared by *Rasa Ratnakar* method is 96.08% mercurous chloride and 05.02% is mercuric chloride. Sample of *Rasakarpura* prepared by *Ayurved Prakash* method is having 83.95% of mercurous chloride and 09.63% of mercuric chloride. *Rasakarpura* prepared by *Rasa Tarangini* method is 99.79% w/w mercuric chloride. Sample prepared by using modify method of *Rasa Tarangini* by Haridatta Sastry (half amount of sulphuric acid than mercury) is mercurous chloride 92.66% w/w.

Rao P. G. et al[4] also worked on *Rasakarpura* as his post graduation research work. In this work *Rasakarpura* was prepared by using *Rasa Tarangini* method. But details of the work can not be found by author of this article.

Rao P. G. et al[5] has prepared *Rasakarpura* in four sets. In 1st set *Parada* 1 part, concentrated H_2SO_4 1.5 part and *Saindhava Lavana* equal to intermediary product was used. In 2nd set, mercury (1 part), *Kasisa* (2 part) and *Saindhava Lavana* (2 part) were used. In 3rd and 4th set, *Tuttha* and *Sphatika* were used instead of *Kasisa* in addition to *Parada* and *Saindhava Lavana*. He reported that 300 – 320^{0}C temperature for 6 – 6½ hours are sufficient in EMF to sublime the product. On analysis of samples he found that *Rasakarpura* Sample I as mercuric chloride, Sample II as mercurous chloride and Sample III and IV as mixture of mercuric chloride and mercurous chloride.

Mehta N. J. et al[6] developed Standard Operating Procedure of *Rasakarpura* and *Rasakarpura Drava* as per the reference of *Rasa Tarangini* 6/65-71 & 6/103-105. In the pharmacological study acute and chronic toxicity of *Rasakarpura* and Dermal toxicity of *Rasakarpura Drava* with using standard drug i.e. chemically prepared Mercuric chloride was carried out. Result shows *Rasakarpura* is less toxic in comparison to chemically prepared mercuric chloride. In analytical study of *Rasakarpura*, mercuric chloride 97.98% along with Sodium, Magnesium and Calcium as trace element were found. In clinical study patients were cured by 0.1% of *Rasakarpura Drava* and *Gandhaka Malahara.*

Suvarna et al[7] also prepared *Rasakarpura* by using *Rasa Tarangini* method. An analytical report reveals that it is completely soluble in water and alcohol, and slightly in chloroform. As the particle size of *Rasakarpura* was found 11.48µm, so it is quickly absorption. The percentage of *Parada* obtained is 70.08% and chloride is 19.4% in the *Rasakarpura*. N.P.S. Test indicates it may be mercuric chloride.

Sarode Sandeep et al[8] concluded that *Rasakarpura* prepared as per *Rasa Tarangini* method was better than it that prepared by using equal quantity of *Parada* and *Romaka Lavana*. They used *Sharava* in *Lavana Yantra* for *Paka* (indirect heating pattern).

Shetti Shraddha et al[9] prepared *Rasakarpura* by using *Rasa Tarangini* method. An analytical report reveals that *Rasakarpura* has density of 5.43 g/cm^3 and an acidity of 3.2 and crystal structure orthogonal. For elemental analysis SEM and EDTX proved to be useful, which had showed mercury as the main element followed by chlorine. Other trace element like Na, O, C, S etc were also determined. AAS that worked on the principal of cold vapour technique failed to detect mercury in *Rasakarpura* as the level above the detectable limits. However, Mg was detected by AAS in *Rasakarpura*. XRD showed mercuric chloride $HgCl_2$ as the major crystallite phase for *Rasakarpura*.

Reddy Sekhar et al[10] prepared *Rasakarpura* by using 5 different methods and after that they were analyzed by using different parameters. *Rasakarpura* – 1 was prepared by *Rasa Tarangini* method. *Rasakarpura* – 2 was prepared by heating *Suddha Parada*-18 parts, *Gandhakamla*-10 parts, *Saindhava Lavana*-10 parts by adopting special *Kupi* which was made by using waste glass pieces in *Bhatti* as used in Traditional method. *Rasakarpura* – 3, 4 and 5 were prepared by using reference of *Rasamrita*, *Paradasamhita* and *Yoga Tarangini*. Total mercury was found to be 67.28%, 45.97%, 69.85%, 69.85% and 72.82% in *Rasakarpura* – 1, 2, 3, 4 and 5 respectively. Particle size for *Rasakarpura* – 1, 2, 3, 4 and 5 material which passed through the sieve no 44 (355µ) were 56.45%, 96.37%, 51.54%, 73.94% and 90.50% respectively. By XRD analysis, *Rasakarpura* - 1 was identified as Mercury chloride, with orthorhombic crystal structure, having Primitive Lattice and *Rasakarpura* – 2, 3, 4 and 5 were identified as Calomel, with Tetragonal crystal structure, having Body centered lattice respectively.

Mehta N. J. et al[11] developed S.O.P. for the preparation *Rasakarpura Drava* and *Rasakarpura Malahara* (gel). Sophisticated analyses were carried out by TG-DTA-DSC method to find out the sublimation point of *Rasakarpura* (prepared as *Rasa Tarangini* method). Report suggests that it is started at 282.06^{0}C and completely sublimed at 282.88^{0}C temperature.

Naik M. S. et al[12] compiled various preparation techniques of *Rasakarpura*. The large scale manufacture of *Rasakarpura* is seen only in Kondapalli. The process is carried out at a distance place outside the village to avoid toxicity of fumes that arise during the preparation for local public. In the process, a wide porcelain vessel is taken and 17 kg of mercury is placed in it. 10 liters of Sulphuric acid (H_2SO_4) is gently added to mercury with great care. It is kept on hearth to provide heat. Medium type of heat is given, the mercury starts bubbling after 30 minute and white colored fumes start to originate from this mixture, the mixture is stirred with an iron ladle continuously, the fumes intensify further with a stink of burning corps. After one hour when the mixture becomes like a white paste, the stirring is also intensified. Gradually it becomes powder at the end of one and half hours. The fumes ceases completely when the mixture is converted into white powder. Then the contents are transferred into an iron bowel. No change is found in the weight of mercury. The outcome of this process is made into fine powder and mixed with Saindhava and carefully kept inside the mud smeared thin glass bottles which are readily prepared in the factory itself. Each bottle is filled with the 120 gm of the compound and sealed with black mud paste. After seal is dried, three such sets are kept amidst pebbles 1 cm. size in an earthen plate. This set is arranged on hearth and severe heat is given with firewood for 2 hours, to process the whole quantity of the compound it required 225 glass bottles which are kept on 75 hearths. After intense heating for 2 hours, the sets are left for cooling down. After almost 24 hours when the set is cool down by itself, the bottles are carefully taken out the external mud cover is scraped with great care, the bottle is broken and the *Rasakarpura* formed as a glittering white layer is collected and preserved. The *Rasakarpura* appears like camphor flakes.

Vinay T. C. et al[13] was prepared *Rasakarpura* by using *Rasa Tarangini* reference. In analytical part of this study, XRD reveals presence of $HgCl_2$ as main constituents along with other trace elements like Ca, Na, Pb, Ar, Zn,Mg, Fe. LD50 value was found to be 55 mg/kg with a confidence limit of 35.02 to 155 mg/kg.

DISCUSSION

Today a problem has arises before the present scholar that what is the scientific identity to be placed before the scientific world for the chemical composition of *Rasakarpura*, because the physical properties of *Rasakarpura* are seem to be somewhat identical with mercuric chloride, mercurous chloride or even combination of the both. There is difference opinion in the chemical identity of *Rasakarpura* as available in *Rasashastra* book.

Vaidya Vasudeva Mulashankar Dwivedi[14], Pandit Girija Dayalu Sukla[15], Dr Siddhinandana Mishra[16], Pandit Visvanath Dwivedi[17] are the authorities who have quoted *Rasakarpura* as mercuric chloride.

Vamana Ganesh Desai[18], Nadakarni[19], Dr Prabhakar Chatarji[20] are the name of the authors who opine *Rasakarpura* as mercurous chloride or calomel.

Dr Himasagar Chndra Murti[21] and Shri Hari Prapannaji[22] opine corrosive sublimate as savvira or dachikana. Swami Hari Sharanananda also claimed *Dalchikana* as the product of mercury with double part of sulphuric acid.[23]

By the above all references we can say that the authors differ in their opinion regarding *Rasakarpura*.
Amongst the 53 references so far we have collected, only 3 references have indicated the use of *Gandhakamla* in the preparation of *Rasakarpura*. The proportion of *Parada* and *Gandhakamla* in references of *Rasa Tarangini*[24], *Rasa Yog Sagar*[25] and *Siddha Prayog Sangrah*[26] is found 1:1.5, 1:1 and 1:0.6 respectively.

As we can see, mercuric chloride is called per chloride of mercury or Hydragirum per chloride or corrosive sublimate and its formula is $HgCl_2$. Mercurous chloride is called sub chloride of mercury or calomel and its formula is HgCl or Hg_2Cl_2.

Mercuric chloride and mercurous chloride differs their formula, chemical reaction as well as action. Mercuric chloride is completely soluble in water and mercurous chloride is insoluble in water. Mercuric chloride is antiseptic and antibacterial whereas mercurous chloride is laxative.

According to modern chemistry mercuric chloride can be prepared by heating mercury with excess of concentrated sulphuric acid and then subliming the product with salt.[27]

The process of chemical reaction can be shown in the following equation.
$Hg + 2H_2SO_4 \rightarrow HgSO_4 + 2H_2O + SO_2$
$HgSO_4 + 2NaCl \rightarrow HgCl_2 + Na_2SO_4$

Mercurous chloride can be prepared by heating excess quantity of mercury with less volume of concentrated sulphuric acid and then sublimating the product with salt.
Mercurous chloride can also be prepared by grinding mercuric sulphate thoroughly with common salt and metallic mercury and sublimating the whole mass.[28]
$HgSO_4 + 2NaCl + Hg \rightarrow Hg_2Cl_2 + Na_2SO_4$

By the above equations it is evident that the total proportions of mercury and sulphates will determine the product as mercurous and mercuric chloride.

It has been observed in other references of the preparation of *Rasakarpura* that in its ingredients, sulphate form like *Sphatika* [$K_2SO_4 \cdot Al_2(SO_4)_3 \cdot H_2O$], *Kasisa* ($FeSO_4\ 7H_2O$), *Tuttha* ($CuSO_4 \cdot 7H_2O$) etc are used. It is known that the compound like ferrous sulphate release sulphuric acid when heated.
$2FeSO_4\ 7H_2O \rightarrow Fe_2O_3 + H_2SO_4 + SO_2 + 6H_2O$

In almost all references either *Sphatika* or *Kasisa* are taken in 1 part or even less than that of mercury. So we can very well grasp the idea behind this proportion that excess of metallic mercury is made to react with less quantity of sulphuric acid leading to mercurous chloride or calomel.

This is supported by experiments, in which *Kasisa* or *Sphatika* are used, have led to mercurous chloride. Similarly the practical done according to *Rasa Tarangini* by using concentrated sulphuric acid with the one and half proportionate of mercury has given out mercuric chloride.

Shri Haridutta Sastri, the commentator of *Rasa Tarangini* has recommended the half proportion of sulphuric acid instead of one and half proportion as mentioned in text.[29]

The experiment by conducted H. Yeriswamy et al with half part of concentrated sulphuric acid to 1 part of mercury produced mercurous chloride.

In Andhra Pradesh it is considered to be a common remedy for Arthritis, *Shwasa, Kasa* and *Sootikopadravas* (post-partum complications). In Kondapalli near Vijayawada, *Rasakarpura* is being prepared in large scales by many families and supplied throughout Andhra Pradesh and exported all over India. They also follow formula and ingredients mentioned in *Rasa Tarangini* with slight modification in the proportion of the ingredients and techniques. A good quality and high yield is obtained by this technique, so all south Indian ayurvedic pharmacies using this type of manufacturing for *Rasakarpura*. Even today some families totally thrive on the traditional manufacturing of *Rasakarpura*. This method was used and analysed by Niak M.S. in his thesis.

Rao P. G. et al, Mehta N. J. et al-MD thesis, Suvarna et al, Shetti Shraddha et al, Reddy Sekhar et al, Mehta N. J. et al-PhD thesis, Vinay T. C. et al analysed that *Rasakarpura* prepared by *Rasa Tarangini* method is mercuric chloride. In these works also analysed that *Rasakarpura* prepared by other method than *Rasa Tarangini* is mercurous chloride and in some methods it is found mixture of mercuric and mercurous chloride.

Sarode Sandeep et al and Mehta N. J. *et al* also concluded that *Rasakarpura* preparation method of *Rasa Tarangini* is easier and convenient.

Mehta N. J. et al, Shetti Shraddha et al and Vinay T. C. et al conclude that in *Rasakarpura* there are also some other elements as trace elements.

By the above facts it is clear now that the preparation according to the reference of *Rasa Tarangini* will lead to mercuric chloride which is in fact *Dalchikana* or *Savvira* as claimed by Swami Hari Sarananandaji. The preparation done without concentrated by using other sulphate materials lead to mercurous chloride which is the *Rasakarpura* before the period of *Rasa Tarangini*.

So it is important to select reference for preparation of *Rasakarpura* according to the use of *Rasakarpura*.

CONCLUSION:

Rasakarpura is chloride salts of mercury along with trace elements. If proportion of *Gandhaka* (direct or indirect) is less than *Parada* than there may be chance to find mixture of mercuric and mercurous chloride, while the proportion of *Gandhaka* is more than *Parada* than there may be found mainly mercuric chloride in final product.

REFERENCE

1. Mehta NJ, Patgiri BJ, Prajapati PK. Review on classical preparation methods of *Rasakarpura*. Annals of Ayurvedic Medicine. 2013; 2(4): 160-167
2. Patel A. S. et al, *Rasakarpura Nirmana*, MD Dissertation, year-1975, IPGT & RA, GAU, Jamnagar.
3. H. Yery Swamy et al, The preparation of *Rasakarpura* and its efficacy in skin disorders w.s.r. to *Vicharchika*, MD Dissertation, year-1984, IPGT & RA, GAU, Jamnagar.
4. Rao G. P. et al, Study on *Rasakarpura* (standardization and evaluation of toxicity and antimicrobial activity), MD thesis, year 1991, IMS, BHU, Varanasi.
5. Rao G. P. et al, Study on *Rasakarpura*, PhD thesis, year 1995, IMS, BHU, Varanasi
6. Mehta N. J. et al, Pharmaceutical standardization of *Rasakarpura* & *Rasakarpura Drava*, its safety profile & therapeutic effect on *Kshudra Kustha*. MD Dissertation, year - 2007, IPGT & RA, GAU, Jamnagar
7. Nidagundi S. P. et al., Preparation, physic-chemical analysis of *Rasakarpoor* and its antimicrobial activity, M.D. (Ayu) dissertation, year 2007, D. G. M. Ayurvedic Medical college, Gadag, RGUHS, Bangalore.
8. Sarode Sandeep et al, Preparation of *Rasakarpura* by two classical methods and its comparative analytical study, M.D.(Ayu) dissertation, year-2008, RGUHS, Bellary
9. Shetti Shraddha et al, A pharmaceutico chemical study of *Bhutaghna chakrika* and the evaluation of its antimicrobial activity when administrated in the form of *Rasakarpura Drava.* MD Dissertation, year - 2010, Muniyal institute of Ayurved medical science, RGUHS, Manipal.

10. Reddy sekhar et al., A comparative pharmaceutico analytical & toxicity study of *Rasakarpura* prepared with 5 different methods, Ph D thesis, year - 2011, NIA, Jaipur
11. Mehta N. J. et al, Pharmaceutical standardization of *Rasakarpura Drava* and *Rasakarpura Malahara* (Gel) and their effect on *Kshudra Kustha*. PhD thesis, year - 2012, IPGT & RA, GAU, Jamnagar
12. Srinivas Naik et al, Comparative study of various preparation techniques of *RasKarpura*, MD (Ayu) dissertation, Year-2012, Dr. N.R.S. Govt. Ayurved College, Vijayawada.
13. Vinay T.C. et al, Pharmaceutico analytical and toxicological study of *Rasakarpura*, MD (Ayu) dissertation, Year-2012, SDM college of Ayurved, RGUHS, Udupi.
14. Vasudev M. D., *Parada Vigyaniyam*, Sharma Ayurveda Mandir, Datia, 1997.
15. Girija Dayalu Shukla, commentary of *Rasendra Sara Sangraha*, 1967, p.23.
16. Siddhi Nandan Mishra, *Ayurvediya Rasashastra*, Chaukhamba Orientallia, Varanasi, 1981, p.298
17. Vishwanath Dwivedi, *Bharatiya Rasashastra*, Sharma Ayurveda Mandir, Datia, 1987.
18. Vamana Ganesh Desai, *Bhartiya Rasashastra*, p.222
19. Nadakarni K.M., Indian material medica, part 2, Bombay popular prakashan, 3rd edition, 1976, p.81
20. Prabhakar Chattarji, *Rasachikitsa*, Chaukhamba vidya bhavan, 1956,p.27
21. Himasagar Chndra Murti, A pharmaceutical and clinical study of *Rasa patangam*, MD Dissertation, year - 1978, IPGT & RA, GAU, Jamnagar
22. Hari Prapannaji, *Rasa Yoga Sagar*, Krishna Das Acadmey, Varanasi, part 2, p.621
23. Swami Hari Sharanananda, *Bhasma Vignan*, part 2, p.621
24. Sharma S. N., *Rasa Tarangini*, Shastri K. N., Hindi commentary, Motilal Banarasi Das, Delhi, 2004.p.115
25. Sharma H. P., *Rasa Yoga Sagar*, Krishna Das Acadmey, Varanasi, 1999, Vol. – I. p.231.
26. *Rasa Tantra Sara Va Siddha Prayoga Sangraha*, Krishna Gopal Ayurved Bhavan, Kaleda, 2003, Vol. I .p.535.
27. Gehani H.D. & Parekh S. M., Modern inorganic chemistry, 1961.
28. Gehani H.D. & Parekh S.M., Modern inorganic chemistry, 1961.
29. Haridatta Sastri, Prasadini commentary on Rasa Tarangini, 11th edition, 1982, p.116

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CONCEPT OF *'VISHA'* - AN *AYURVEDIC* PERSPECTIVE

Kalpana R. Chavhan[1*], **Shama S. Suryawanshi** [2]

1. * Assistant Professor, Department of Agadtantra, Government Ayurved College, Nagpur. Mob.no-9422167952, Email- drkalpanachavhan@gmail.com
2. Professor, Department Of Agadtantra, Government Ayurved College, Nagpur. Mob.no.-9403267021, Email-shama56surya@gmail.com

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***Corresponding Author**

Kalpana R. Chavhan
Assistant Professor,
Department of Agadtantra,
Government Ayurved College,
Nagpur. Mob.no-9422167952,
Email-
drkalpanachavhan@gmail.com

QR Code IJAAM

ABSTRACT:
Agadtantra is one of the eight branches of Ayurveda, which deals with the study of poison and it's treating measures .The term *visha* is derived for causing *vishada i.e.* depression of sprits,even for *devatas* .When *visha* is administered , it disturbs all the functions of body , makes them abnormal, which degrades the health of human being resulting death. While using any drug it is important that the physician should be aware of its properties and it should be administered with the treating intensions. The real difference between a medicine and a poison is the intent with which it is given. An acute poison can become an excellent drug if it is properly administered, and similarly even a drug, if not properly administered, becomes an acute poison. Action of a drug on the body is depend upon various factors like it's properties, dose, mode of administration etc.But it is important to know that what properties of a substance decides either it act like a medicine or like a poison on the body. As properties of a *dravya* is important to know it's mode of action,it is useful to decide the line of treatment for specific poisoning. This review article includes discussion about the *Ayurvedic* concepts of properties of poisonous substances, their origins and factors responsible for their mode of action.

Key Words: Toxicology, *Agadtantra, Visha, Visha-guna,* Poison

INTRODUCTION

Toxicology is one of the branch of medical science which deals with poisons with reference to their sources, properties, toxic symptoms produced by them, the lethal dose, treatment to combat the toxic effects, methods for detections of poisons [1].It is included under *Agadtantra*, one of the eight branches of Ayurveda.[2] On account of filling with depressed spirits or *Vishada* ,it is termed to be *visha* i.e. poison.[3] It is a substance on administration disturbs all the functions of body i.e. *Dosha, Dhatu, Mala* and makes them abnormal, which degrades the health of human being resulting death. Medico-legal experts expresses that the real difference between a medicine and a poison is the intent with which it is given. Ayurveda is a science which is having preventive and treating principles towards the diseases. There are many causes of different diseases mentioned in the ancient texts. Poisons are one of them. By any means poisons get entered in the body and disturb the normal functions of the body. For treating it, various medicinal formulations are mentioned in Ayurveda. They are termed as *Agada* i.e. Antidotes. These are the substances which prevents the action of poison and neutralize it's effects. Medico-legal experts expresses that the real difference between a medicine and a poison is the intent with which it is given. According to *Charaka* even an acute poison can become an excellent drug if it is properly administered, and similarly even a drug, if not properly administered, becomes an acute poison. [4] The action of poison is depend upon it's properties and is called as *guna* of that substance. The substance having 10 *gunas* is considered as most toxic in action. [5] There are differences of opinions about the numbers of *gunas* among all the *Aacharyas.* These properties of *Vishadravya* will decide that what kind of toxic effect it will create in the body and how it will get treated. Due to the properties like *Ashukaritwa, Ushna, Tikshna vishadravya* get rapidly spread in the body so it is a main content of many *ayurvedic* medicinal formulations.

So for understanding the poison, it's mode of action and treatment it is important to understand the concept of its *gunas* and some other factors which are responsible for it's mechanism of action.

Aim and Objective-

-To study the concept of *Visha* according to Ayurveda.

-Recollect and arrange all the scattered references in different ancient texts related to *Visha.*

Materials and Method-

-The whole study is based on literary review collected from classical *Ayurveda* texts and modern books.

-This study is carried out under following heads-

1. Definition of *Visha*

2. *Vishotptti*-(Mythological Origin of Poison)
3. Classification of Visha-
4. *Visha Gunas*-Ten attributes of poison
5. *Panchabautik* investigations
6. *Visha prabhava*-(Effect of poison on the body)
7. Discussion
8. Conclusion

Definition of *Visha*

The word 'Visha' is made with the two words i.e. *Vish+ka,* which means to occupy or to get spread rapidly. A substance which rapidly gets spread in to *Rasadi dhatus* and occupies the body is called as *Visha*. [6].

On account of filling with depressed spirits or *Vishada*, it is termed to be *visha* i.e. poison. As the world became despaired at the sight of it, (or became *vishanna*) it was called *Visha* by *Charaka.*[7] *Chakrapani* described it as *Visha* gives *vishada* [8] *Sharangadhara* defines that the *Visha* is a substance which is *Agnibhutapradhana*, destroyer of life and *yogawahi* i.e. prime synergetic in action.[9] According to modern medical science poison is defined as a substance which after being absorbed in to the living organism or by its chemical action on the tissues, produces an injurious effect on the body.

Vishotptti-(Mythological Origin of Poison)

1. ***Shrimadbhagwat*** **[10]**-In days of yore, while the ocean was being churned by the Gods and the demons for obtaining *Amruta.* Before the appearance of *Amruta*, *Visha* appeared from the ocean. All the Gods and demons got irritate with its presence, then they requested to lord Shiva to have the *Visha* for the well being of the universe. So Lord Shiva drunk the poison. While drinking, some drops of it fall on earth, which got deposit in plants and animals and thus the plant and animal poisons generated.

2. ***Charaka***[11]-While the ocean was being churned by the Gods and the Demons for obtaining *Amruta*, a ferocious person who was resplendent with aura, and who had four fangs, tawny hair and fiery eyes emerged. The world became despaired (*Vishanna*) at this site because of which he was called the poison or *visha* .Lord *Bramha* deposited this poison in *jangam* and *sthavara* substances. Therefore, the poison originated from water (*Ambusmbhavam*) is of two types and it resembles fire (*pavakopam*) [12]

3. ***Shushruta***[13]-It is stated that there was a devil named *Kaitabha*, who out of vanity, obstructed in various ways the work of Lord *Bramha*, when he was engaged in the creation of nature. For acts of *Kaitabha* God *Bramha* grew very angry. His wrath then became manifest and came down in a violent form from his mouth. It burnt the mighty devil to ashes. Even after the destruction of the demon, that wonderful and terrific glow went on surprisingly at the sight of which all the Gods were deeply depressed in sprits (*vishada*). The term *Visha* is so called on account of its filling the Gods with *vishada*. There upon, *Bramha* after having created all living beings cast the remaining wrath both into inanimate and animate creations.

Classification of *Visha*-

On the basis of origin *Visha* has been classified mainly into two categories namely *Sthavar visha* i.e. plant and mineral poisons, and *Jangam visha* i.e. animal poisons where the sites of *Sthavar*[14]and *jangama visha* [15]has described ten and sixteen respectively.[16] *Sushruta*, while describing the instantaneously fatal poison, described *sthavara, Jangama* and *Krittrima vishas* i.e. artificial poison.[17] *Charaka* included another type the *gara visha* along with the above three types.[18]*Chakrapani* opines that, the combination of two-non poisonous materials is called *gara* and which produced by the combination of two poisonous materials, is called *krittrima* or artificial.[19] *Vagbhata* described two main types i.e. natural poison which are *Sthavar* and *Jangam visha* and artificial poison i.e. *Garavisha.*[20] Certain texts also classifies *vishdravyas* in *Mahavisha* [21] and *Upavisha* [22]*Dravya* with high toxic potency called *Mahavisha* and the *visha* with less potency called *Upavisha.*

***Visha Gunas*-Ten attributes of poison**

There are many factors responsible for the specific action of a *dravya*. Some *dravya* act according to its *rasa*, some according to *virya*, some according to *guna* and some of them act according to its *prabhava*.[23] Based on these rasadi gunas, classification of *vishas* or tests of *vishas* are not described in the classical texts of Ayurveda. *Visha* contains 10 *gunas.* [24] *Visha gunas* according to *Ayurvedic* texts are described in Table no 1.These ten *gunas* vitiates the *doshas* and destroys the *Ojas*. The then properties of *visha* can be explained in following way:

- ***Laghu*** (Lightness)- is opposite to *Guru guna* (heaviness).It is also responsible for *Lekhankarma*. [25] *Dravya* having this *guna* are easily digestible and causes lightness in the body.[26]

- ***Ruksha*** (rough)-is apposite to the *snigdha* and causes the *stambhana* (withholding), *kharatva* (harsh), *kathinatva* (hardness) [27], and responsible for the *shoshantva* (emaciation) of the body.[28]
- ***Ashu***(quick acting) [29]-Due to its quickness it get spreads all over the body like the oil which spreads immediately on water.
- ***Vishada***(non-slimmy) [30]-is opposite to *picchila* and removes moistness and helps healing of ulcers
- ***Vyavaye*** (Quickly absorbed)[31]-It first spreads all over the body and then get digested.
- ***Tikshna*** (Sharpness) [32]-Gives rise to burning sensation encourages suppuration and increases secretions.
- ***Vikashi*** (Depressant) -While spreading all over the body produce looseness of the ligaments.
- ***Sukshma*** (minuteness) [33]-Property due to its minuteness enters into the minutest of channels.
- ***Ushna*** (Hotness) [34]-Is opposite to the *sheeta.*
- ***Anirdeshya Rasa*** (Tasteless) [35]-Which does not have any specific rasa or taste
- ***Apaki/Avipaki*** (indigestible) [36]-Which is not digestible.

Sharangadhar samhita described the *visha guna* as, the drugs possessing properties like *vyavaye, vikasi, sukshma, chedi, madavaha, agneya, jivithara* and *yogavahi* is called as *visha.*[37] Effect on the body and responsible *visha Guna* is described in Table no.3[38]. While describing about the origin of the *visha, Sushruta* described another property of the *visha;* just as the atmospheric water which has imperceptible and undeveloped taste, of ground or soil on which it fall upon, so it is the nature of the tasteless *visha* that it partakes up the specific taste (rasa) of thing or animal in which it exists.[39] The nature of *visha* is considered exactly opposite to that of the *Ojas.*[40] so when *visha* is administered or enters the body; causes destruction of *ojas* which leads to death. Difference between *visha, Madya ,Ghrita ,Dugdha* and *Ojas* are described in table no.2. *Ojas* is a substance through which all living beings gets nourished and thus helps to sustain the life of an individual. It is only the foremost substance responsible for the union of *Shukra* and *shonita* thus leads to the formation of fetus. This is the essence of all the seven *dhatus.* [41] *Madya* (Alcohol) is having similar properties as that of *Visha* contains but potency of *guna* is more seen in *visha* than *Madya.* [42] Instead of *Anirdeshya Rasa Madhya* is having its *amla rasa.* [43]-Again like *Visha* alcohol destroys all the attributes of *Ojas* which is the abode of *Satva* by virtue of its ten attributes and result of this affliction, the mind gets agitated and so causes intoxication. [44]

Panchabautik **Investigations**

All matter is constituted of five *mahabhutas.* [45] Thus all the *dravyas* in the world are formed of *panchbhutas* only. According to *siddhanta*, though the *mahabhutas* differ in their ratio in different *dravyas*, they are named by the predominant *mahabhuta* such as *parthiva, aapya, tejasa, vayavya* and *nabhasa dravyas* respectively. [46] Details of *visha guna, Mahabuta* combination, *Dosha prabhava* and Action on the body is described in Table no.4 [47] In the same way, *visha dravyas* are also constituted by these *panchamahabhutas* only. Specific *panchamahabhutic* dominance of *visha dravyas* was not described in the *samhitas. Dalhana* while commenting on *Sushruta's* explanation of detection of poisoning by use on animals, *Vishanna pariksha* is explained in the following way by him [48] -

Shabda Pariksha-when poisoned food burns making loud cracking sound.

Rupa Pariksha-when cast into the fire it acquires the colour of peacock's neck

Gandha Parikhsa-when it burns it emits irritating fumes and it cannot be speedily extinguished

Rasa Pariksha-Flies dies after flying over the poisonous food.

Sparsha Pariksha-Features are explained in the context touch of poisonous food

Visha prabhava-(Effect of poison on the body)

After getting entered into the body the poison immediately vitiates the blood then simultaneously it vitiates all the *tridoshas* and its respective sites and at least proves to be fatal for an individual after getting entered into the *hridaya* (heart) [49].The blood after getting vitiated by poison leads to tingling or pricking sensation all over the body, leads to red colour patches on the skin, sweating, horripilation, feeling of ants moving over the body, sever aches and pains all over the body, yawning, desire for the food stuffs having cold potency. The dominant or the potency of *tridosha* also gets debilitate and looses their potency by mixing up with the blood which gets vitiated by the poison, thus leading to the death or hampering of the health.[50] The poison first vitiates that specific *dosha* by which it is predominant, where the poison gets localized produces the diseases first to that organ. [51] If the poison is present in *Vatashaya*, produces diseases of *Vata* as well as diseases of *Kapha.* If poison is present in Pittashaya, it produces diseases of *Pitta* and *Kapha*, similarly if it is present in *Kaphashaya*, it produces diseases of *Kapha* as well as *Pitta.* [52]

DISCUSSION

Visha is a substance which disturbs all the functions of the body, which results into fetal conditions. Ayurvedic concept of poison is slightly different as that of modern medicine. Medico-legal experts promote the thought that difference between a medicine and a poison is the intent with which it is given as that of Ayurveda expresses the concept that an acute poison becomes an excellent drug if it is properly administered, and similarly even a drug if not administered properly can become an acute poison. According to Ayurveda every *dravya* (substance) can create a specific action on the body and this action depends upon the *guna* (properties) of that *dravya*.Perticular *guna* decides the particular action of that *dravya* on the body. There is a difference of opinions about the number of *vishaguna* present in the *vishadravyas*. But the action of *vishadravyas* in the body knew to all *acharyas*. It is mentioned in the texts that the *vishadravya* having ten *gunas* is considered as more toxic in action e.g. *Vastanabha*, and it's called as *Mahavisha* by *acharyas*. Due to some properties like *Ashukaritwa, Ushana, Tikshana vishadravya* get spread rapidly in the body. So for the quick action of medicines many *ayurvedic* formulations contain these *vishadravyas* as their ingredient. By utilizing these properties of *vishadravyas* medicines can be made more effective. All the substances in the world are formed of *Panchamahabhutas*. In the same way, *vishadravyas* are also constituted by these *Panchamahabhutas* only. Each *vishaguna* contains a specific *Mahabhuta* combination and so as having a *dosha prabhava* which is responsible for particular action in the body e.g. *Laghu guna* contains *mahabhuta* like *Teja, Vayu* and *Aakash*, so it act like *Vataprakopak* and *Kaphashamak* and generates a effect of *Langhana* in the body.

So *guna* is responsible for specific action of a *vishadravya* in to the body. Hence it is important to know that which *vishadravya* containing which *gunas* so it will be better for understanding it's action in the body and will also useful to minimize it's hazardous action and helpful for treating toxicity.

Table No.1: Classification of *Gunas*

Sr.no.	*Charaka*	*Sushruta*	*Vagbhata*	*Sharangadhar*
1	*Laghu*	-	*Laghu*	-
2.	*Ruksha*	*Ruksha*	*Ruksha*	-
3.	*Aashu*	*Aashu*	*Aashukarita*	-
4.	*Vishad*	*Vishad*	*Vishad*	-
5.	*Vyavaye*	*Vyavavaye*	*Vyavaye*	*Vyavaye*
6.	*Tikshna*	*Tikshna*	*Tikshna*	-
7.	*Vikasi*	*vikasi*	*Vikasi*	*Vikasi*
8.	*Sukshma*	*Sukshma*	*Sukshma*	-
9.	*Ushna*	*Ushna*	*Ushna*	*Aganeya*
10.	*Anirdeshyarasa*	-	*Avyaktarasa*	-
11.	-	*Laghupaki*	*Vishampaki*	-
12.	-	-	-	*Chedi*
13.	-	-	*Medawaham*	*Medawaham*
14.	-	-	-	*Yogwahi*
15.	-	-	-	*Jivithara*

Table no.2: Comparison of *Gunas-Visha, Madya, Ojas, Ghrita, Dugdha*

Visha	***Madya***	***Ooja***	***Go-dugdha*** [53]	***Go-ghrita*** [54]
Laghu	*Laghu*	*Guru*	*Guru*	*Laghu*
Ruksha	*Ruksha*	*Snigdha*	*Snigdha*	*Snigdha*
Tikshna	*Tikshna*	*Mrudu*	*Mrudu*	*Mrudu*
Ushna	*Ushna*	*Sheet*	*Sheet*	*Sheet*
Sukshma	*Sukshma*	*Bahal*	*Sandra*	*Yogwahi*
Ashukari	*Ashukari*	*Prasanna*	*Prasanna*	*Prasanna*
Vyavaye	*Vyavaye*	*Sthirra*	*Manda*	*Saumya*
Vikashi	*Vikashi*	*Slakshna*	*Slakshna*	*Slakshna*
Vishada	*Vishada*	*Pischil*	*Pischil*	*Alpabhishyyandi*
Anirdeshyarasa	*Amla*	*Madhur*	*Madhur*	*Madhur*
Apaki	-	-	-	-
Yogawahi	-	-	-	-
Madawaha	-	-	-	-
Chedi	-	-	-	-
Jivithara	-	-	-	-
-	-	-	-	*Rasayana*
-	-	-	-	*Kaphakar*

Table No.3: Effect on Body and Responsible *Gunas* [41]

Sr.No.	Effect In the body	Responsible Guna
1.	Enters in all body parts	*Sukshma,Ashu,Vyavaye*
2.	Disturbunces in *Marmasthana*	*Tiksshna,Vikasi,Chedi*
3.	Reflecting *Buddhi*	*Tikshana,Vikashi,Madawaha,Chedi*
4	*Raktadushti*	*Sukshma,Tikshana*
5.	*Vaatdushti*	*Ruksha*
6.	*Pittadushti*	*Ushna,Agneya*
7.	*Kaphadushti*	*Anirdeshyarasa*
8.	Incerasing *Aahar-rasa*	*Anerdeshyarasa and Yogwahi*
9.	Spreading rapidly	*Ashu,Vyavaye*
10.	No any change	*Vyavaye*
11.	Not get digested	*Apaki*
12.	Minimizing the treatment measures	*Laghu*
13	Difficult to treat	*Laghu,Apaki*
14.	Loosing Body and Mind	*Vishad,chedi*
15.	Sudden Death	*Ashu,vyavaye,Vikashi*
16.	Destroying *Ooja*	All *gunas*

Table no.4: *Panchabautik* Investigations

Sr.No.	*Vishaguna*	Mahabuta combination	*Dosha Prabhava*	Main Function in the Body
1.	*Laghu*	*Teja+Vayu+Akaash*	*Vaat↑,Kapha↓*	*Langhana*
2.	*Ruksha*	*Teja+Vayu+Prithvi*	*Vaat↑,Kapha↓*	*Shoshan*
3.	*Ushna*	*Teeja*	*Pitta↑,Vaat↓,Kapha↓*	*Swedana*
4.	*Tiksna*	*Teeja*	*Pitta↑,Kapha↓*	*Shodhana*
5.	*Sukshma*	*Teja+Vayu+Akaash*	*Vaat↑*	*Vivarnata*
6.	*Vishada*	*Teja+Vayu+Akaash+ Prithvi*	*Vaat↑*	*Prakshalan*

CONCLUSION

Properties of a substance decides either it act like a medicine or like a poison in the body. An acute poison can become an excellent drug if it is properly administered, and similarly even a drug ,if not properly administered ,becomes an acute poison. So it is important to know that what properties of a substance decides either it act like a medicine or like a poison in the body. All actions of *Visha* are depends upon the *Gunas* that it having. Particular *guna* is responsible for particular effect on the body. Once we come to know the *guna pradhanya* in a poisonous substance it will be easy to treat the condition by using *dravyas* which are having opposite *gunas*. So for proper treatment of poisoning it is important to know about the *guna-pradhanya* that the substance is having. For knowing the *sadhya-sadhyatwa* and fatality, *gunas* are also important. The substance containing 10 numbers of *vishaguna* is more fatal and difficult to treat

REFERENCES

1. Bardale Rajesh, Editors, Principles of Forensic Medicine and Toxicology,1st ed. Jaypee Brothers Medical Publishers (P) Ltd.;2011.chapter 32,p.413.
2. Tripathi Bramhanand, Dr.Gangasahaya Pandeya, editors, Charaksamhita,7th ed.varanasi; Chukhambha Orientalia; Su.30/28, 2000.p.567
3. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha, reprint ed., Varanasi, Chukhambha Sanskrit Sansthan; klp.3/21, 2007.p.32,
4. Tripathi Bramhanand, Dr. Gangasahaya Pandeya, editors, Charaksamhita,7th ed. varanasi; Chukhambha Orientalia; Su.1/127-128, 2000.p.47
5. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha, reprint ed., Varanasi, Chukhambha Sanskrit Sansthan; klp.2/24, 2007.p.25
6. Shri. Tatanatha Tarakvachaspati, Vachaspatyam, Reprint ed, Varanasi, Chukhambha Sanskrit Sansthan; khanda 6, .2002.p.4926,
7. Tripathi Bramhanand, Dr. Prabhakar Deshpande, editors, Charaksamhita, reprint, Varanasi; Chaukhambha Orientalia; Chi.23/5, 2002.p.746
8. Vaidya Yadavji Trikamji Acharya, Editor, Charak-Chakrapani Tika Chi.23/4-5, Reprint,Varanasi, Chukhambha Sanskrit Sansthan;2000.p.570
9. Shastri Pandit Parshuram, editor, Sharangdhar samhita pratham Khanda chap.4/22 Sharangdhar, 3rd ed., Varanasi; Chaukhambha Orientalia; 1983.p.39
10. Dr.Nitin sharma , editor, Agadtantra Chp.2,1sted., New Delhi, Chukhambha Sanskrit Sansthan;2012; P.4-5
11. Tripathi Bramhanand, Dr.Prabhakar Deshpande, editors, Charaksamhita Chi.23/4-5, reprint, Varanasi; Chaukhambha Orientalia; 2002.p.746
12. Vaidya Yadavji Trikamji Acharya, Editor, Charak-Chakrapani Tika Chi.23/6,Reprint, Varanasi, Chukhambha Sanskrit Sansthan;2000.p.570
13. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha klp.3/18-22, reprint, Varanasi, Chukhambha Sanskrit Sansthan;2007.p.32
14. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha klp.3/3,reprint, Varanasi, Chukhambha Sanskrit Sansthan;2007.p.29.
15. Ibid, klp.3/3-4, p.29-30
16. Ibid, klp.2/3, p.15
17. Ibid, klp.2/24,p.25
18. Tripathi Bramhanand, Dr.Prabhakar Deshpande, editors, Charaksamhita Chi.23/14,reprint, Varanasi; Chaukhambha Orientalia;2002.p.749

19. Vaidya Yadavji Trikamji Acharya, Editor, Charak-Chakrapani Tika Chi.23/14,Reprint, Varanasi, Chukhambha Sanskrit Sansthan;2000.p.571
20. Tripathi Bramhanand, Editor. Ashtanga Hridayam Uttar.35/5, reprint, Varanasi, Chukhambha Sanskrit Pratisthan;2007.p.1144
21. Chunekar Krushnachandra,commentator Gangasahaya Pandeya, Editor, Bhavprakash Nighantu –Purvakhanda, Dhatwadivarga/191,1sted., Varanasi; Chaukhambha Vidya Bhavan,1960, p.678
22. Ibid, Purvakhanda, Dhatwadivarga/206, p.682
23. Lalchandra Shastri Vaidya, Vaidya Desai Ranjeetrai, editor, Ashtanga Sangraha Sutra.17/23,2nded.,Nagpur, Shri Baidyanath Ayurved Bhavan Ltd., 1981,p.561
24. Tripathi Bramhanand, Dr. Prabhakar Deshpande, editors, Charaksamhita Chi.23/24, reprint, Varanasi; Chaukhambha Orientalia;2002.p.752
25. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha su..46/526, reprint, Varanasi, Chukhambha Sanskrit Sansthan;2007.p.224
26. Shastri bramhashankar,Commentetor, Gangasahaya Pandeya, Editor, Bhavprakash Purvakhanda, Mishraprakarnam 6/202,4sted., Varanasi; Chaukhambha Vidya Bhavan;196;, p.188.
27. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha su..46/523, reprint, Varanasi, Chukhambha Sanskrit Sansthan;2007.p.224
28. Chunekar krushnachandra, Commentetor, Gangasahaya Pandeya, Editor, Bhavprakash Nighantu –Purvakhanda, Dhatwadivarga/191,1sted., Varanasi; Chaukhambha Vidya Bhavan,1960,p.678
29. Shastri Ambikadatta, editors, Sushrutsamhita - purwardha su.46/530, reprint, Varanasi, Chukhambha Sanskrit Sansthan;2007.p.225
30. Ibid, su..46/524, p.224
31. Ibid, su..46/529, p.225
32. Ibid, su..46/525, p.224
33. Ibid, su..46/53, p.225
34. Ibid, su..46/522, p.224
35. Tripathi Bramhanand, Editor, Ashtanga Hridayam Uttar.35/7, reprint, Varanasi, Chukhambha Sanskrit Pratisthan; 2007. p.1144
36. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha klp.3/23, reprint, Varanasi, Chukhambha Sanskrit Sansthan;2007.p.32
37. Shastri Pandit Parshuram, editor, Sharangdhar samhita pratham Khanda chap.4/23, Sharangdhar, 3rd ed., varanasi; Chaukhambha Orientalia;1983.p.39
38. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha klp.2/20-23, reprint, Varanasi, Chukhambha Sanskrit Sansthan;2007.p.24
39. Ibid, klp.3/23-24, p.32
40. Tripathi Bramhanand, Editor, Ashtanga Hridayam Uttar.35/8, reprint, Varanasi, Chukhambha Sanskrit Pratisthan;2007.p.1144
41. Shastri Ambikadatta, editors, Sushrutsamhita-purwardha su.15/24, reprint, Varanasi, Chukhambha Sanskrit Sansthan; 2007. p.60
42. Tripathi Bramhanand, Dr. Prabhakar Deshpande, editors, Charaksamhita Chi.24/98, reprint, Varanasi; Chaukhambha Orientalia;2002.p.819
43. Ibid, Chi.24/30, p.808
44. Ibid, Chi.24/32-34, p.808
45. Ibid, Su.26/10, p.469
46. Lalchandra Shastri Vaidya, Vaidya Desai Ranjeetrai, editor, Ashtanga sangraha Sutra.17/03,2nded.,Nagpur, Shri Baidyanath Ayurved Bhavan Ltd.,1981, p.551
47. Tripathi Bramhanand, Dr. Gangasahaya Pandeya, editors, Charaksamhita ,Su.26/11, 7th ed. Varanasi; Chukhambha Orientalia;2000.p.470
48. Vaidya Yadavji Trikamji Acharya, Narayan ram Acharya, Editor, Sushrutsamhita- Commentry by Dalhanacharya Kalp-1/28-33, Reprint,Varanasi,Chukhambha Surbharati Prakashan,2003, p.560-561
49. Vidyalankar Atridev, editor, Ashtangsangraha (2ndpart) Uttar.40/18,1sted.Varanasi, Banaras Hindu University press;1962.p.342
50. Ibid, Uttar.40/19, p.342
51. Ibid, 40/20, p.342
52. Ibid, Uttar.40/21-22, p.342
53. Tripathi Bramhanand, Dr. Gangasahaya Pandeya, editors, Charaksamhita, Su.27/217, 7th ed. Varanasi; Chukhambha Orientalia;2000.p.526
54. Ibid, Su.27/232, p.528

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NIRGUNDI HERB USED IN ANCIENT INDIAN MEDICINE - PHYTOCHEMICAL AND PHARMACOLOGICAL REVIEW

Rasale Prashant*

1. * Asst.professor Dept. of Shalyatantra, Govt Ayurved College Vazirabad Nanded, e-mail:- prashant.rasale@rediffmail.com

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NIRGUNDI HERB USED IN ANCIENT INDIAN MEDICINE - PHYTOCHEMICAL AND PHARMACOLOGICAL REVIEW

***Corresponding Author**

Rasale Prashant
* Asst. Professor Dept. of
Shalyatantra, Govt Ayurved
College Vazirabad Nanded,
E-mail:-
prashant.rasale@rediffmail.com

QR Code IJAAM

ABSTRACT:
Vitex nigundo is a succulent plant of family *Verbenaceace* commonly found in tropical and subtropical xeric wood. It is a A large, aromatic **shurb** with quadrangular densely whitish tomentose branch lets, up to 4-5m in height or sometimes a small slender tree, found throughout the greater part of India widely used as a analgesic medicine . The plant is prescribed in the ancient *Ayurvedic* literature as a general tonic and analgesic, with specific *vatahara* properties. The plant is believed to be useful in *Krim* (worm infestation), *kushta* (skin Diseases), *Aruchi* (Anorexia), *Kaphajvrana, pliha* (Splin Diseases), *gulma* (Abdominal Lumps), *shopha(Oedema), pradar(Lucoria), Adhman(Abdominal distension), Nadivrna* (Sinus Track) *Dushtavrama* (Infected Ulcer). *Pama, Apachi, Sphota* (Dermal Pathologies). All types of ulcers. *Katigatavata* (Lumbar Spondilysis), *kasa (*Cough*), Apasmar (*Epilepsy*), Snayuk Grudhrasi, sandivata, Vataroga* (Orthopedic Deformities) apply as externally or orally as required. Efforts have been made by researchers to verify the efficacy of the plant through scientific biological screening. The scrutiny of literature revealed some notable pharmacological activities of the plant such as Antibacterial**,** Anti-inflammatory, Analgesic agent Increases granulation tissue formation, *Vrana Shodhan, Vrana Ropana.* Presented in this review such that the potential use of the plant either in pharmaceutics or as agriculture resource can be evaluated. The present review is an attempt to highlight phytochemicals, various traditional uses as well as pharmacological reports on *Vitex negundo. Linn*

Key Words: *Samhalu*, three chest leaves, *Nirgundi, Ayurved, Vitex negundo.*

INTRODUCTION

A large, aromatic shurb with quadrangular densely whitish tomentose branch lets, up to 4-5m in height or sometimes a small slender tree, found throughout the grater part of India. Ascending to an altitude of 1.500m. In the outer Himalayas. Bark thin, gray, leaves 3-5 faliolate leaflet's - lanceolate, entire or rarely crenate terminal leaflet's 5-10cm X 1.6 - 3.2cm lateral leaflets smaller, all nearly glabrous above white tomentose beneath. Flowers bluish purple small in peduncled cymes, farming large, terminal, often compound pyramidal panicles; fruits globose, black when ripe, 5-6mm diam. Invested at the base with enlarge calyx. The roots in the Commercial drug as big cylindrical, somewhat tortuous pieces with very few attached rootlets. Some of the pieces measure 0.25 to 5.0 cm. in diameter, the outer bark is grayish brown of exhibits longitudinal craks. The wood is pale yellow. The root is hard & tough and break with an irregular fracture. The drug has no pleasant taste or odour. The rate of growth of the shurb is moderate, with seven rings per 2.5 cm. of radius, given a mean annual girth increment of 2.3 cm. useful Parts are Roots, fruit, floor, leaves, bark.**[1]** The present review will possibly help to bridge between traditional claims and modern therapy on *vitex nigundo* L. and also pinpoints unexplored potential of it. The plant finds mention in the verses of the Charaka Samhita which is unarguably the most ancient and authoritative textbook of Indian Ayurveda. Vitex negundo Linn. has been designated as an anthelmintic and is prescribed as a vermifuge in the exposition on the Charaka Samhita. Other Ayurvedic uses of Vitex negundo Linn. are people sleep on pillows stuffed with Vitex negundo Linn. leaves to dispel catarrh and headache and smoke the leaves for relief. Crushed leaf poultice is applied to cure headaches, neck gland sores, tubercular neck swellings and sinusitis. Essential oil of the leaves is also effective in treatment of venereal diseases and other syphilitic skin disorders. A leaf decoction with Piper nigrum is used in catarrhal fever with heaviness of head and dull hearing. A tincture of the root-bark provides relief from irritability of bladder, rheumatism and in dysmenorrhea. Formulations described in Anubhoga Vaidya Bhaga, a compendium of formulations in cosmetology, in outlining the use of Vitex negundo Linn. leaves along with those of Azadirachta indica, Eclipta alba, Sphaeranthus indicus and Carum copticum in a notable rejuvenation treatment known as Kayakalpa. [2,3]

Materials and Methods

Classification of the plant:

Latin Name : Vitex negundo. Linn.

Gana : Vishaghna, Krimighna (Charak), Surasadi Gana (Su.)

Taxonomic Classification [4]

Kingdom - Plantae ;Subkingdom - Tracheobionta ;Super Division - Spermatophyta ;Division - Magnoliophyta ;Class - Magnoliopsida ;Sub Class - Asteridae ;Order - Lamiales ;Family – Verbenaceae;Genus - Vitex ;Species - negundo ;

Vernacular names:- Assam - Aslok ;Bengal - Nirgundi, Nishinda ;English - Five leaved chaste tree ;Gujarati - Nagod ;Hindi - Nirgundi ;Kannad - Lakkigida, Nekka, Nakkilu, Nakkigida ;Malayalam - Indranee, Karunacci ;Marathi - Nirgundi ;Punjabi - Sambhalu, Banna; Telgu- Tellavavili; Sanskrit - Nirgundi

Habitat: The plant is found throughout India, Ceylon- Afghanistan, tropical Africa, Madagascar, China .The plant occurs in Bengal, Southern India and Burma also.[5,6] It is common in waste places around villages, river banks, moist localities and in the deciduous forests. [7]

Types : (A) Nilapushpi (B) Shwetpushpi [6]

Ayurvedic properties :-Rasa Katu (pungent), Tikta (bitter) Guna Laghu (Ruksha), Ruksha (dry) Virya Ushna (hot) Vipaka Katu (pungent) ; Doshakarma Kapha-Vata Shamaka [2]

Phytochemistry:

Phytochemical constituents of different plant parts of Vitex negundo;-

Leaves:- 6′-p-hydroxybenzoyl mussaenosidic acid; 2′-p-hydroxybenzoyl mussaenosidic acid viridiflorol; β-caryophyllene; sabinene; 4-terpineol; gamma-terpinene; caryophyllene oxide; 1-oceten-3-ol; globulol; 5,3′-dihydroxy-7,8,4′-trimethoxyflavanone; 5,3′- dihydroxy, 6,7,4′ trimethoxyflavanone; 5-hydroxy -3,6,7,3',4'-pentamethoxy flavones; 5,7 dihydroxy-6,4' dimethoxy flavonone; 5hydroxy-7,4' dimethoxy flavones; 5,3'-dihydroxy-7,8,4'-trimethoxy flavanone; betulinic acid [3β-hydroxylup-20-(29)-en-28-oic acid]; ursolic acid [2β -hydroxyurs-12-en-28-oic acid]; n-hentriacontanol; β-sitosterol; p-hydroxybenzoic acid; protocatechuic acid; oleanolic acid; flavonoids angusid; casticin; vitamin-C; nishindine; gluco-nonotol.

Seeds:-3β-acetoxyolean-12-en-27-oic acid; 2α, 3α-dihydroxyoleana-5,12-dien-28-oic acid; 2β,3α diacetoxyoleana-5,12-dien-28-oic acid; 2α, 3β-diacetoxy-18-hydroxyoleana-5,12-dien-28-oic acid; vitedoin-A; vitedoin-B; a phenylnaphthalene-type lignan alkaloid, vitedoamine-A; five other lignan derivatives, 6-hydroxy-4-(4-hydroxy-3-methoxy-phenyl)-3-hydroxymethyl-7-methoxy-3,4-dihydro-2-naphthaldehyde, β-sitosterol; p-hydroxybenzoic acid; 5-oxyisophthalic acid; n-tritriacontane, n-hentriacontane; n-pentatriacontane; n-nonacosane.

Roots: 2β,3α-diacetoxyoleana-5,12-dien-28-oic acid; 2α,3α-dihydroxyoleana-5,12-dien-28-oic acid; 2α,3β-diacetoxy-18-hydroxyoleana-5,12-dien-28-oic acid; vitexin; isovitexin, negundin-A; negundin-B; (+)-diasyringaresinol; (+)-lyoniresinol; vitrofolal-E; vitrofolal-F, acetyl oleanolic acid; sitosterol; 3-formyl-4.5-dimethyl-8-oxo-5H-6,7-dihydronaphtho (2,3-b)furan.

Essential oil of fresh leaves, flowers and dried fruits :- δ-guaiene; guaia-3,7-dienecaryophyllene epoxide; ethyl-hexadecenoate; α-selinene; germacren-4-ol; caryophyllene epoxide; (E)-nerolidol; β-selinene; α-cedrene; germacrene D; hexadecanoic acid; p-cymene and valencene. viridiflorol (19.55%), β-caryophyllene (16.59%), sabinene (12.07%), 4-terpineol (9.65%), γ-terpinene (2.21%), caryophyllene oxide (1.75%), 1-oceten-3-ol (1.59%), and globulol (1.05%). Viridifloro

Strength as per ayurvedic pharmacopoeia of india: [6]

Total ash 6.055 % ;Carbohydrate 7.5-10.57 %;Acid insoluble ash 0.920 % ;Crude fiber 25.50-30.50 %Water soluble ash 1.460 % ;Fat 5.00-9.00 %Pet. Ether extractive 0.912 % ;Alkaloids 0.5 %Benzene extractive 0.535 % ;Bitter 5 %Chloroform extractive 0.433 %; Proteins 12.22-15.23 %Alcohol extractive 24.330 % ;Moisture 15.00-18.70 %Water-soluble extractive Not less than 20 % ;Foreign Matter 1.9-2.0 %.

Traditional uses:-[41] Traditional medicine mainly comprises of Indian Ayurveda (i.e. various *nighantus* and *samhita*), Arabic Unani medicine and traditional Chinese medicine used this drug as *krimighna* (Antiworm), *shothahara* (Anti-inflammatory) and *shulhara* (Analgesic) agent [41, 42]. In Asia and Latin America, populations continue to use traditional medicine as a result of historical circumstances and cultural beliefs. Traditional medicine accounts for around 40% of all health care delivered in China. Up to 80 % of the population in Africa uses traditional medicine to help meet their health care needs. Folklore systems of medicine continue to serve a large segment of population, especially those in rural and tribal areas, regardless of the advent of modern medicine. The entries regarding the multifarious applications of *Vitex negundo* Linn. in folk medicine have been grouped regionally to emphasize the ethanobotanical diversity and ubiquityof the plant; and the details have been laid out in *table 1* [10, 12]

Table No 1 showing ethanobotonical diversity of nirgundi

Sr no	Country	Region	Local name	Used in treatment of
1	Bangladesh	Chittagong	...	Weakness, Headache, Vomiting, Malaria, Black fever
2	China	Guangdong	Bugingiab	Common cold, Flu and Cough
3	Nepal	Kali	Gandaki Simali	Sinusiti, Whooping cough
4	Pakistan	Buner	Marvandaey	Chest-pain, Backache, Used as toothbrush
5	Philippines-	-	-	Cancer
6	Sri Lanka	-	Nilnikka	Eye disease, Toothache, Rheumatism

Pharmacological uses

Demands of the scientific community have necessitated experimental evidence to further underline the medicinal importance of *Vitex negundo* Linn. described above. Taking cue from these traditional and folk systems of medicine, scientific studies have been designed and conducted in order to pharmacologically validate these claims. The decoction of leaves is used for treatment of inflammation, eye-disease, toothache, leucoderma, enlargement of the spleen, ulcers, cancers, catarrhal fever, rheumatoid arthritis, gonorrhea, sinuses, scrofulous sores, bronchitis and as tonics. As vermifuge, lactagogue, antibacterial, antipyretic, antihistaminic, analgesic, insecticidal, ovicidal, growth inhibition and morphogenetic agents. antigenotoxic, antihistamine, CNS depressant activity and anti-fertility effects were reported from the leaves of *Vitex negundo* Linn [16].

1] Anti-inflammatory activity: The sub-effective dose of *Vitex negundo* Linn. potentiated anti-inflammatory activity of phenlbutazone and ibuprofen significantly in carrageenin induced hind paw oedema and cotton pellet granuloma models. The potentiation of anti-inflammatory activities phenlbutazone and ibuprofen by *Vitex negundo* Linn. indicates that it may be useful as an adjuvant therapy along with standard anti-inflammatory drugs. Yunos et al. and Jana et al. established anti-inflammatory properties of *Vitex negundo* Linn. extracts in acute and sub-acute inflammation which are attributed to prostaglandin synthesis inhibition. [3,24.]

2] Anti-nociceptive activity: Tail flick test in rats and acetic acid induced writhing in mice were employed to study the antinociceptive activity of ethanolic leaf extract of *Vitex-negundo* Linn. (100, 250 and 500 mg/kg, p.o). The effect was compared with meperidine (40 mg/kg, sc) in tail flick method and aspirin (50 mg/kg, p.o) in writhing test as a standard control respectively. An interaction with naloxone hydrochloride was also studied in tail flick method for its mechanism of central analgesic action. It showed significant analgesic activity in dose dependant manner in both the experimental models. It suggested that *Vitex-negundo* Linn. possesses both central and peripheral analgesic activity. The central analgesic action does not seem to be mediated through opioid receptors. It may prove to be a useful adjuvant therapy along with standard analgesic drug [25].

3] CNS depressant activity: A methanolic extract of the leaves of *Vitex negundo* Linn. was found to significantly potentiate the sleeping time induced by pentobarbitone sodium, diazepam and chlorpromazine in mice. fractionation of ethanolic extract of leaves of *Vitex negundo* Linn. resulted in the isolation of new flavone glycoside along with five known compounds. All the isolated compounds were evaluated for their antimicrobial activities. The new flavone glycoside and compound 5 were found to have significant antifungal activity against Trichophyton mentagrophytes and Cryptococcus neoformans. [8]

4] Antifungal activity: Bioactivity guided fractionation of ethanolic extract of leaves of *Vitex negundo* Linn. resulted in the isolation of new flavone glycoside along with five known compounds. All the isolated compounds were evaluated for their antimicrobial activities. The new flavone glycoside and compound 5 were found to have significant antifungal activity against Trichophyton mentagrophytes and Cryptococcus neoformans at MIC 6.25 g/ml [26].

5] Antioxidant Activity: The antioxidant potency of *Vitex negundo* Linn. was investigated by all the fractions of *Vitex negundo* Linn. exhibited a potent scavenging activity for (2, 2′-azino-bis 3-ethyl benzothiazoline-6-sulfuric acid) ABTS radical cations in a concentration dependent manner, showing a direct role in trapping free radicals. The polar fractions of *Vitex negundo* Linn. possess potent antioxidant properties. Tandon and Gupta have also reported similar antioxidant properties of *Vitex negundo* Linn. in rats, by using ethanol inducedoxidative stress model27,28.The extracts also possess the ability to combat oxidative stress by reducing lipid peroxidation owing to the presence of flavones, vitamin C and carotene. Rooban et al. evaluated the antioxidant and therapeutic potential of *Vitex negundo* Linn. flavonoids in modulating solenoid-induced cataract and found it to be effective [3,29].

6] Enzyme-inhibitory activity: Root extracts of *Vitex negundo* Linn. showed inhibitory activity against enzymes such as lipoxygenase and butyrylcholinesterase, α-chymotrypsin, xanthine-oxidase and tyrosinase. Also reported the HIV type 1 reverse transcriptase inhibitory activity of the water extract of the aerial parts of *Vitex negundo* Linn.[30].

7] Anticonvulsant activity: Maximal electroshock seizures (MES) in albino rats and pentylenetetarazole (PTZ) induced seizures in albino mice were used to study anticonvulsant activity of *Vitex negundo* Linn. leaf extract. The test drug dose (1000 mg/kg, p.o) showed 50% protection in clonic seizures and 24- hour mortality against PTZ induced seizures. It also decreased number and duration of convulsions significantly. *Vitex negundo* Linn. Potentiated anticonvulsant activity of valporic acid. The anticonvulsant activity of *Vitex negundo* Linn. Has not been found equi-effective with standard drugs. Moreover, the potentiation of diphenylhydantoin and valporic acid by *Vitex negundo* Linn. indicates that it may be useful as an adjuvant therapy along with standard anticonvulsants and can possibly lower the requirement of diphenylhydantoin and Valporic Acid. [3,31].

8] Antibacterial studies: Essential oils and successive ethyl acetate and ethanol extracts of *Vitex negundo* Linn. showed antibacterial activity against *Staphylococcus aureus, Bacillus subtilis, Escherichia coli* and *Pseudomonas aeruginosa* bacterial strains. Main constituents identified in leaves oil were dguaiene, carryophyllene epoxide and ethylhexadecenoate; In flowers oil α-selinene, germacren-4-ol, carryophyllene epoxide and (E)-nerolidol while fruit oil showed β -selinene, α-cedrene, germacrene D and hexadecanoic acid as the main constituents which help for antibacterial activity. **[40]**

9] Antiallergic Activity: Ethanolic extract of *Vitex negundo* Linn. showed antiallergic activity against immunologically induced degranulation of mast cells. It also inhibited edema during active paw anaphylaxis in mice. The extract significantly inhibited both the initial and later sustained phases of tracheal contractions. The initial phase was primarily due to histamine and the latter phase was due to release of lipid mediators from arachidonic acid. Inhibition of the latter phase may be secondary to inhibition of arachidonic acid by the ethanolic extract. [40]

10] Snake venom neutralization activity: The methanolic root extracts of *Vitex negundo* Linn. And *Emblica officinalis* showed antisnake venom activity. The plant *Vitex negundo* Linn. extracts significantly antagonized the Vipera russellii and Naja kaouthia venom induced lethal activity both in in vitro and in vivo studies. Vipera russellii venom-induced haemorrhage, coagulant, defibrinogenating and inflammatory activity were significantly neutralized by both plant extracts. No precipitating bands were observed between the plant extract and snake venom [8,31,32] .

11] Effect on reproductive potential: The flavonoid rich fractions of seeds of *Vitex negundo* Linn. Caused disruption of the latter stages of spermatogenesis in dogs and interfered with male reproductive function in rats. It must however be noted that these findings are in sharp contrast with the traditional use of *Vitex negundo* Linn. as aphrodisiac. Hu et al. determined that ethanolic extracts of *Vitex negundo* Linn. Showed estrogen-like activity and propounded its use in hormone replacement therapy [8,33].

12] Histomorphological and cytotoxic effects: Tandon and Gupta studied the histomorphological effect of *Vitex negundo* Linn. extracts in rats and found the stomach tissue to be unaffected even by toxic doses; while dose-dependent changes were observed in the heart, liver and lung tissues. Cytotoxic effect of leaf extracts of *Vitex negundo* Linn. was tested and affirmed using COLO-320 tumour cells. On one hand, Diaz et al. found the chloroform extracts of *Vitex negundo* leaves to be toxic to a human cancer cell line panel. Yunos et al. reported that *Vitex negundo* Linn. extracts were noncytotoxic
on mammary and genito-urinary cells of mice. [34]

13] Hepatoprotective activity: The ethanolic extract of *Vitex negundo* Linn. at 250 and 500 mg/kg doses significantly decrease Serum Bilirubin, Aspartate Aminotransferase (AST), Alanine Aminotransferase (ALT), Alkaline Phosphates (ALP) and Total Protein (TP) levels against hepatotoxicity (HT) produced by administering a combination of three antitubercular drugs isoniazide (7.5 mg/kg), rifampin (10 mg/kg) and pyrazinamide (35 mg/kg). Alcoholic extract of the seeds of *Vitex* *negundo* Linn. showed the hepatoprotective action against carbon tetrachlorideinduced liver damage. The extract was found to be effective in preventing liver damage which was evident by morphological, biochemical and functional parameters3. Nirgundi exerts a protective effect on CYP2E1- dependent CCl4 toxicity via inhibition of lipid peroxidation, followed by an improved intracellular calcium homeostasis and inhibition of Ca2+ dependent proteases [35,36].

14] Hypoglycemic activity: Villasenor and Lamadrid have provided an account of the antihyperglycemic activity of *Vitex negundo* Linn. Leaf extracts [37,38].

15] Laxative activity: The aqueous extract of the *Vitex negundo* Linn. leaves at doses 100 and 200 mg/kg was investigated for laxative activity according to Cappaso *et al*. in albino rats were compared with standard drug agar-agar (300 mg/kg, p.o.) in normal saline.

16] Immuno-modultory activity: Immuno-modulatory effect of *Vitex negundo* Linn. extracts has been reported by Ravishankar and Shukla .The decoction of leaves is considered as tonic, vermifuge and is given along with long pepper in catarrhal fever [39] .

17] Drug potentiating ability: Administration of *Vitex negundo* Linn. extracts potentiated the effect of commonly used anti-inflammatory drugs such as ibuprofen and phenylbutazone analgesics such as meperidine, aspirin, morphine and pethidine; sedative-hypnotic drugs like pentobarbitone, diazepam and chlorpromazine; anti convulsive agents such diphenylhydantoin and valporic acid [28].

18] Antimicrobial activity: Antimicrobial activity of Nirgundisiddha taila was tested upon three organisms i.e. E.coli, streptococcus Aures & Pseudomonas Aeruginosa. This Drug has Antimicrobial activity again E.coli culture but not effective against cultures of s.Aureus and Psudomonas in the above test using culture medium as sterile soyabean casein Digest medium.

Toxicology :-Drug has been used since ancient time so the proper administration of this herb in appproperiate doses not cause harm. [41]

Doses in adults :- Juice-15-20 ml ; Decoction 50-10ml ; Leaves powder 1.5 to 3 gm, Dry leaves extract :-300-600mg. [6,42]

CONCLUSION

In recent year, ethnobotanical and traditional uses of naturally compound, especially plant origin receive much attention as they were well tested for their efficacy generally believed to be safer for human use. They obviously deserve scrutiny on modern scientific lines such as phytochemical investigation, biological evaluation on experimental animal models, toxicity studies, investigation of molecular mechanism of action of isolated phytoprinciples and their clinical trials. Thorough screening of the literature available on *Vitex negundo* Linn. depicted the fact that it is a popular remedy.

REFERENCES

1. http://www.ayurvedaconsultants.com/herb (Assessed on 20.03.2014)
2. Kirtikar KR, Basu BD, Indian Medicinal plants. Dehradun Publishers Ltd, India1994; 1: 830-832.
3. 3. The wealth of India - The dictionary of Indian raw materials of Industrial products. Volu. - X (sp-w) publication of information Directorate CSIR (Council of scientific of Industrial Research) New Delhi 1976.
4. Dr.K.M.Nardkarnis Indian materia medical vol - I 1927. Second edition Bombay popular prakashna. Revised & enlarged by A.K.Nadhawni
5. Khare CP, Encyclopedia of India Medicinal plants. Spinger Verlange Berline Heidelberge New York, 2004; 474-476.
6. The Ayurvedic Pharmacopeia of India.Government of India Ministry of health and family welfare department of ISM & H. 2001; Part-I, Vol 3: 142-144.
7. http://www.planetayurveda.com/homeremedies. htm accessed on Aug 2008.
8. http://www.blissayurveda.com/pics/Vitexne gundo.jpg accessed on Oct 2009.
9. Sharma PC, Yelne MB, Dennis TJ, Database of Medicinal plants used in Ayurveda. New Delhi, CISR 2005, 450.
10. Singh V, Dayal R, Bartley JP, Volatile constituients of Vitex negundo leaves. Planta Med. 1999; 65: 580-582.
11. Mallavarapu GR, Ramesh S, Kaul PN, Bhattacharya AK, Rajehwara Rao B.R, Composition of essential oils the leaves of Vitex negundo. Planta Med. 1994; 60: 583-584.
12. Dayal R, Singh VA, Comparative study of volatile constituent of Vitex negundo Leaves. J med Aromat Plant Sci. 2000; 22: 639-640.
13. Chowdhury B, Dutta U S, Pakrashi PK, Two isomeric flavonones from Vitex negundo Linn. Phytochemistry. 1984; 23:703.
14. Subramanian PM, Misra GS, Flavonoids of Vitex negundo, J. Nat. Products.1979, 42; 5: 540-542.
15. Vishwanathan AS, Basavaraju R, A review on Vitex negundo L. – A medicinally important plant. EJBS. 2010; 3 (1): 30-42.
16. Gautam LN, Shrestha SL, Wagle P, Tamrakar BM, Chemical constituents from Vitex negundo (linn.) of nepalese origin Scientific World. 2008; 6: 6.
17. Singh V, Dayal R, Bartley JP, Volatile Constituents of Vitex negundo Leaves. Planta Med. Letters. 1999; 65: 580-582.
18. Meena AK, Singh U, Yadav AK, Singh B, Rao MM, Pharmacological and Phytochemical Evidences for the Extracts from Plants of the Genus Vitex – A Review. International Journal of Pharmaceutical and Clinical Research. 2010; 2(1): 01-09.
19. Chaturvedi GN, Singh RH, Indian journal of Medical Research. 1965; 53: 71.
20. Hansal R, Leuckert C, Rimpler H, Schaaf KD, Phytochemistry.1965; 4: 19.
21. Sirait LM, Rimpler H, Experientia. 1962; 18: 72.

22. http://www.philippineherbalmedicine.org/lagundi.htm accessed on Sept 2010.
23. Chandramanu C, Rao D, Phytotherapy Research. 2003; 17(2): 129.
24. Tandon VR, Gupta RK, Vitex negundo Linn (VN) leaf extract as an adjuvant therapy to standard anti inflammatory drugs. Indian J Med Res. 2006; 124(4): 447-50.
25. Gupta RK, Tandon VR, Antinociceptive activity of Vitex-negundo Linn leaf extract. Indian J Physiol Pharmacol. 2005; 49(2): 163-70.
26. Sathiamoorthy B, Gupta P, Kumar M, Chaturvedi A. K, Shukla PK, Maurya R. New antifungal flavonoid glycoside from Vitex negundo. Bioorg Med Chem Lett. 2007; 17(1): 23942.
27. Prabhu AR, Rajan AP, Review on the therapeutic potential of Vitex negundo Linn. Journal of Pharmacy Research. 2010; 3(8): 1920-1922.
28. Devi PR, Kumari K, Kokilavani C, Effect of Vitex negundo leaf extract on the free radicals scavengers in complete freund's adjuvant induced arthritic rats. Indian Journal of Clinical Biochemistry. 2007; 22 (1): 143-147.
29. Tiwari OP, Tripathi YB, Antioxidant properties of different fractions of Vitex negundo Linn. Food Chemistry. 2007; 100(3): 1170-1176.
30. Tandon VR, Gupta RK. An experimental evaluation of anticonvulsant activity of Vitex negundo. Indian J Physiol Pharmacol. 2005; 49(2): 199-205.
31. Alam MI Gomes A, Snake venom neutralization by Indian medicinal plants (Vitex negundo and Embelica officinalis) root extracts . J. Etanopharmacol. 2003; 86(1): 75-80.
32. Gupta RK, Tendon VR, Anti-nociceptive activity of Vitex negundo linn leaf extract, Indian J Physiol Pharmacol. 2005; 49(2): 163-170.
33. Das S, Parveen S, Kundra CP, Pereira BM, Reproduction in male rats is vulnerable to treatment with the flavonoid-rich seed extracts of Vitex negundo. Phytother Res. 2004; 18(1): 8-13.
34. Sharma MM, Khanna P, Saini R, Batra A, Potential plant source of a promising drug for cancer chemotherapy: Vitex negundo L. Journal of Economic and Taxonomic Botany. 2006; 30: 269-273.
35. Tandon V, Gupta RK, Histomorphological changes induced by Vitex negundo in albino rats. Indian Journal of Pharmacology. 2004; 36: 176-177.
36. Sheikh AT, Kaiser PJ, Gupta BD, Gupta VK, Johri RK, Negundoside, an irridiod glycoside from leaves of Vitex negundo, protects human liver cells against, calciummediated toxicity induced by carbon tetrachloride. World J Gastroenterol. 2008; 14(23): 3693-3709.
37. Villasenor IM, Lamadrid MR, Comparative anti-hyperglycemic potentials of medicinal plants. J. Ethnopharmacol. 2006; 104(1- 2):129-31.
38. Chawla As, Sharma AK,Ha SS, Dhar KL,Chemical investigation and antiinflammatoy
39. activity of Vitex negundo leaves, J Natl. Prod.1992; 55: 163-167.
40. Adnaik RS, Pai PT, Mule SN, Naikwade NS, Magdum CS. Laxative Activity of Vitex negundo Linn. Leaves. Asian J. Exp. Sci. 2008; 22(1): 159-160.
41. International journal of advances in pharmacy,Biology and chemistry Vol. 1(1), Jan- Mar, 2012, Natural product redience vol 4(3) may-june 2005
42. P.V. Sharma , Dravyagunavijnana vol.2nd published by chukhamba bharati Academy reprint 2011 p.66-68

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A CRITICAL REVIEW ON *STHANIK CHIKITSA* (Local Therapies) ADOPTED IN *STREE ROGA*

Dhanashri H. Mahajan,[1*] Saudamini S. Chaudhary [2]

1. * Assistant Professor, Dept of Prasutitantra & Striroga, Government Ayurved College, Vazirabad, Nanded, Mob No. 9766809336, Email: drdhanashribhoyar@gmail.com
2. Professor and Head of Department, Dept of Prasutitantra & Striroga, Government Ayurved College, Vazirabad, Nanded, Mob No.9224173659

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A CRITICAL REVIEW ON *STHANIK CHIKITSA* (Local Therapies) ADOPTED IN *STREE ROGA*

***Corresponding Author**

Dhanashri H. Mahajan
Assistant Professor, Dept of
Prasutitantra & Striroga,
Government Ayurved College,
Vazirabad, Nanded,
Mob No. 9766809336,
Email:
drdhanashribhoyar@gmail.com

QR Code IJAAM

ABSTRACT:

In *Ayurvedic* Gynaecology *Sthanik Chikitsa* (Local therapies) are the specialized treatment procedures. These procedures basically deal with the disorders of *Tryavarta Yoni* (Three coverings of Vagina). These includes mainly. *Yonidhawan* (Cleaning of Vagina),*Uttar-Basti* (Insertion of Medicated oil, decoction into Intra Uterine Cavity through Vagina), *Yoni-Pichu dharan* (Insertion of Tampoons soacked in medicinal oil or liquid), *Yoni-Dhupan* (Vaginal Fumigation); *Yoni-Lepan* (Vaginal painting), *Yonivarti* (Vaginal Suppository), *Yoni-Puran* (Vaginal Packing), *YoniParishek, Pinda Chikitsa* etc. In this Study all these Local therapies are reviewed through ancient texts and discussed with respect to their definitions, Sites of application, duration of time, Indications, Procedures. The Standard Operating Procedures (SOP) of each Local Therapies are given. The SOP is set of written instructions that document a routine or repetitive activity. In SOP, the activities performed are described in a clear, logical, sequential and methodical manner. This study will definitely prove to be helpful to *Ayurvedic vaidyas* in understanding concept of these Local Procedures and in carrying out these procedures in their clinics legitimately.

Key Words: *Sthanik Chikitsa*, Standard Operating Procedures, *Tryavarta Yoni*, *uttarbasti, Ayurvedic* Gynaecology

INTRODUCTION

Stree roga (Gynecology) deals with the changes that occur during all stages of a woman's life such as puberty, reproductive age and menopause and also the diseases that occur during these stages. In General, Gynaecological Disorders are treated first by *Shaman Chikitsa*(Medicinal Treatment) and then *Shodhan Chikitsa* (Biopurification Procedures) i.e. application of the five Purificatory Therapies - what is known as the *Panchakarma*. These are the procedures in *Ayurvedic* therapeutics which helps in getting rid of different ailments. These procedures are done by following specific protocols of *Purva Karma*(Pre-operative), *Pradhan Karma* (Operative) and *Pashchat Karma* (Post-Operative).

Besides these procedures there are some *Sthanik Chikitsa* (Local therapies) in *Ayurvedic* Gynaecology prescribed by Ancient *Acharyas* e.g. *Yonidhawan*(Cleaning of Vagina), *Uttar-Basti* (Insertion of Medicated oil, decoction into Intra Uterine Cavity through Vagina), *Yoni-Pichu dharan* (Insertion of Tampoons soacked in medicinal oil or liquid), *Yoni-Dhupan* (Vaginal Fumigation) ; *Yoni-Lepan* (Vaginal painting), *Yonivarti* (Vaginal Suppository), *Yoni-Puran* (Vaginal Packing), *Yoni Parishek , Pinda Chikitsa* etc. These procedures are practiced Local therapies for vaginal disorders, pre-requisite of *Panchakarma* in *stree Rog*, Or in specific local or systemic disorders in gynecology.

In this study, these procedures are studied with respect to their theoretical review and Standard Operating Procedure of each process is given. The Standard Operating Procedures (SOP) of each Local Therapies are given. Standard Operating Procedure (SOP) is a set of instructions having the force of a directive, covering those features of operation that lend themselves to a definite or standardized procedure without loss of effectiveness. Standard Operating Procedure of should not be confused with establishment of unique standard. It is not expected that this is the only method which can be called standard. On the contrary it is restricted to detail documentation of procedure followed. This study will definitely helpful in understanding the importance of this *Sthanik Chikitsa* (Local Therapies). Moreover the SOP'S of these procedures will definitely prove to be helpful to *Ayurvedic* Physicians who use these procedures in their day to day practice.

AIM

- To study *Sthanik Chikitsa* (Local Therapies) practised in *Ayurvedic* gynaecology.

OBJECTIVES

- To study *Sthanik Chikitsa* (Local Therapies) from different *Ayurvedic* texts

- To develop a Standard Operating Procedure of each *Sthanik Chikitsa* (Local Therapies)

The *Sthanik Chikitsa* (Local Therapies) are described as follows

1) *Yonidhawana* (Cleaning of Vagina)

Dhawana karma of *yoni* is termed as *Yonidhawan. Acharya sushruta* and *Vagbhat* consider *dhawana* as *prakshalana*. *Dhawana* means cleaning or purification of wound with water and other medicated material.[1] [2]

Sthana (Site) - *Prathamavarta* (Vagina) [3]

Duration – 8 days [3]

Timing - *Rutukala* (After 5th day of menses for 8 days)

Time - 1 to 1.5 Min.[3]

Drugs Used - *Kwatha* (Decoction), *Kshirpaka* (Medicated Milk), *Siddha Jala* (Medicated Water), Oil [3]

Quantity - 1litre of decoction, 250 ml of oil

Indications -

1. *Kunapgandhi Artavdushti* [4]
1. *Kaphaja Artava Dushti* [5]
2. *Yoni Srava* [6] (Vaginal Discharge)
3. 4.*Yoni Kleda*[7]
4. *Yoni Paicchilya* [8]
5. *Yoni Kandu* (Vaginal Itching)
6. *Yoni Arsha* [9] (Vaginal Polyps)

Material: Enema Pot, Catheter
Procedure:

- Proper aseptic measures should be ensured before starting the procedure.
- Patient is given lithotomy position.
- Sterile rubber catheter is inserted into vagina.
- Enema pot filled with decoction is kept at 5 feet distance with luke warm decoction *prathamavarta* (Vagina) is washed out.[3]

Most of the drugs used for *Yonidhana* have styptic, wound healing, pain alleviating and bactericidal actions. They prevent growth of bacterial organisms and restore the altered PH of vaginal cavity. Absorption of the drugs through the mucosa and blood circulation also helps to have beneficial effects on the uterus. The oil or decoction once used should not be reused even for same patient.

2) *UTTARBASTI* (Insertion of Medicated oil, decoction into Intra Uterine Cavity through Vagina)

Basti which is given through *uttarmarga* i.e. either through the passages located above or in front part (urethra or vagina) of anus (where routine *basti* is given) is known as *Uttarbasti*.[10] *Basti* possessing superior qualities is termed as *uttarbasti*.[11]

Indications

Due to suppression of *vayu* by *uttarbasti* , woman conceives immediately.[12] It is also beneficial in diseases of urinary bladder such as retention of urine, dysuria, utero-vaginal prolapsed, severe vaginal pain, other gynaecological disorders (*yonivyapada*), *Asrigadara* (menometrorrhagia) ammenorrhoea, dysmenorrhoea other menstrual disorders which are difficult to cure and retention of placenta. [13]
The standard Operating Procedure of *Uttarbasti* can be explained as follows

A) *Uttarbasti* in vaginal condition

- Vaginal infections – Bacterial and fungal infections are commonly found in vagina. Drugs used for these conditions should be bactericidal or bacteriostatic or antifungal in nature. *Jatyai Ghrita* or *Jatyadi tail* prove to be beneficial in these conditions.
- Vaginal Mucosal defects – The vaginal mucosal defects may be explained under following headings
  - **Vaginal milieu pH.**
    Generally vaginal PH remain in between 3 & 4.This acidic PH prevents vaginal infections. In case of PH variations appropriate drugs should be administered to restore normal PH. Commonly used drugs for this purpose are *Triphala, Panchavalkal, Dashamula etc.*
  - **Vaginal Secreation**
    Uttarbasti with suitable drugs can be administered either to increase or decrease vaginal mucosal secretions. *Ghrita* preparation possessing *snigdha* and *pichchhil* properties can be used to improve vaginal mucosal secretions. Similarly formulations predominantly having *kashaya* rasa are useful to decrease vaginal secretions.
  - **Inflammation of vaginal walls** –
    Drugs possessing anti-inflammatory properties can be best administered in the form of *uttarbasti* in case of vaginal Inflammation. Preparations with Nirgundi

(*Vitex Nigundo*), *Dashamula*, *Ashwagandha* (Withania Somnifera) can be selected for this purpose.

B) *Uttarbasti* in Cervical conditions

- Cervical Erosions – Chronic Cervicitis associated with erosions can be easily treated with *Uttarbasti* by using *Ropana* drugs (Wound healing drugs). Medicated *Ghrita* like *Triphala Ghrita, Shatavari* (*Aspargus Racemoses*) *Ghrita*, *Phala Ghrita*, etc are being used commonly.
- Cervical Mucous - Cervical Mucous (CM) is the vehicle for transport of sperms and also works against infections. Quantitatively less CM is observed in individuals having *vata prakriti* predominance, short cervical canals, small cervical OS. It can be improved by using medicated *Ghrita* having *snigdha* and *pichchhil guna*.
- Cervical Mucous pH – The pH of cervical mucous plays an important role as it provides transport media for spermatozoa. Normal range of PH of CM falls in between 6 and 7. Any variation in this range may lead to non survivability of spermatozoa. Altered Cervical PH can be corrected by using appropriate drugs.
- Cervical Mucous Disorders – Altered Viscosity, increased cellularity etc can be treated with *Jatyadi Ghrita, Shatavari Ghrita* etc.

C) *Uttarbasti* in endometrial condition

Uttarbasti plays a vital role in recuperating thickness of endometrium and improving quality of endometrim. *Snehas* prepared from *Brihan dravyas* administered through *uttarbasti* plays a vital role in maintaining above conditions. The absorption of these *sneha dravyas* is very rapid which gives results quite fast.

D) *Uttarbasti* in Tubal Disorders

- Hydrosalphinx – An inflammatory condition can be effectively combated with the help of administration of *Nirgundi Taila* (Medicated oil with *Vitex Nigundo*), *Yashtimadhu Taila* (Medicated oil with *Glacrrhiza Gabra*), *Til Taila* (Sesame Oil) etc through *Uttarbasti*
- Tubal Block – *Kshar taila* can be used in *uttarbasti* if Tubal Block is due to adhesions but in cases of spasm due to fibrosis *Brimhan Snehas* can be used

Contraindication

Uttarbasti is contraindicated in Hypersensitivity, Carcinoma of Cervix, Heavy bleeding, Virginity, Vesicovaginal fistula etc.

Time of administration

Before administration of *Uttarbasti* previous infections should be cleared thoroughly. It should be administered after cleansing of women's body by two or three *Asthapana Basties*, It should be administered preferably during *Artavakala* or *Ritukala* (Just after menstrual bleeding is over). In this period uterus and vagina are free from coverings and their orifices are open. This facilitates easy entry of medicinal preparations into vagina and uterus. [13]

Apparatus (*Uttarbastiyantra*)

Uttarbastiyantra consists of a bag for holding the fluid and a nozzle for injecting the fluid. The total length of nozzle with pipe should be of 14 *angula* measured by patient's fingers. The tip should resemble with a pedicle of *jasmine* flower and through the opening mustard seed should paas. [14][15] The *Pushpa* (nozzle or catheter) for woman should be 10 *angulas* in length. Circumference should be of size of their urethral canal. Ancient *Acharyas* have recommended bladder of sheep, pig or goat. In their absence skin of bird's neck or bottom of leather water bag or any soft skin can be used. [16]The use of *Ajabasti* (Goat Bladder) by *Charakacharya* is highly significant here. [17]

In case of adult woman the nozzle should be inserted upto four *angula* (finger breadth) and two *angulas* in urethral passage. In case of young girls it should be one *angula* in urethral passage. [15]

Basti Dravya

Kashaya (decoction), *Taila* (oil) and only oil/*kashaya* are used simultaneously as *basti dravya* for *Niruha*, *Anuvasana*, and *Uttarbasti* respectively. As per *Sushruta* either *kashaya* or *taila* can be used as *uttarbasti dravyas*. In *charak samhita* only *taila* is used in *uttarbasti* procedures. [17]

Quantity and Frequency

Charaka suggests administration of *Uttarbasti* three times a day on three consecutive days. The quantity mentioned is half *pala* (20gms). [17] *Sushruta* and *Vagbhata* differ with this dose opinion. *Sushruta* has mentioned definite quantity of *kashaya* (decoction) and *taila* to both sexes separately. The quantity of decoction should be one *Prasrita* (96gms) for males and two *Prasrita* (192gms) for adult females [17] .For cleansing of uterus *sneha* should be taken in double quantity. [18]

Sneha: Male – 1 *Prakuncha* (48 gms)
Female - 1 *Prasrita* (96gms)

Decoction: Male- 1 *Prasrita* (96gms)
Female - 2 *Prasrita* (192gms)

Method of *Uttarbasti* Administration

The woman should be in positioned supine posture with flexed thighs and elevated knees. The nozzle should be inserted in urinary or vaginal passage slowly with steady hands following direction of the passage. In day and night i.e. in 24 hours total two, three or four *bastis* should be given. Procedure should be continued for three nights (day and night) with gradual increase in oleaginous substance. After giving rest for three days, the procedure should be repeated for another three days. *Karnikas* (Rings) should be introduced and vaginal orifices pressed properly, then bag of *basti* should be compressed properly [19] [20] [21]

Practical/ Procedure of *Uttarbasti*

Instruments: Dispovan 10cc, Insemination cannula or infant feeding tube no.6, Sim's Speculum, Anterior Vaginal Wall Retractor, Volsellum, Uterine sound, *Pichu* (Tampoon)

Procedure

- Before *uttarbasti* one *anuvasan* and two *niruha bastis* should be given
- Inj Atropine 0.6 mg IM is given half hour before *Uttarbasti* to prevent vasovagal shock.
- Procedure can be carried out in Operation Theatre with all aseptic precautions.
- Lithotomy position is given to patient
- Painting and drepping should be done
- Cervix should be visualised by retracting anterior and posterior vaginal wall by Anterior vaginal wall retractor and Sim's speculum respectively
- Cervix is catched with Volsellum
- Uterine Sound is inserted to measure the length of uterus.
- Infant Feeding tube No.6 should be taken and it should be cut about 1 to 2 cm at its proximal end. This end is attached to 10cc Syringe. In this syringe 5 to 7 ml of drug should be taken.
- Proximal cut end should be into uterus upto uterine length measured before and slowly drugs should be pushed
- Tampoon is kept in vagina for 2 hours and patient should be given head low position.
- This procedure is repeated for 3 to5 days.

3) *Yoni Pichu* (Insertion of Tampoons soacked in medicinal oil or liquid)

Pichu is made up of cotton swab 2×3 cm (1 inch) is wrapped with gauze piece and tied with a long thread. It is dipped in medicated oil/liquid. If powder has to use it is kept in thin layer of cotton and then *pichu* is made. *Pichu* is commonly used in treatment of gynaecological disorders. Oils are the most preferred media because of its retention ability.

Types [22]

1. Elongated - 1 finger breadth and 4 finger long
2. Circular – 1 inch length and breadth.

Site [22]

Prathamaavarta (vagina)- Elongated *Pichu*
Dwitiyawarta (External and Internal OS) - Circular *Pichu*

Time of retention of *Pichu*[22]

5 to 6 hours up to retention of micturation.

1. *Yonidaha* and *Yonikandu* [23]
2. *Yoni Paichilya* and *Yoni Srava*[24]
3. *Yoni Paka*[23]
4. *Yoni Karkashata* [25]
5. *Vivritta Yonivyapada*[23]
6. *Vataja Yonivyapad* [26]
7. *Pittaja Yonivyapada*[27]
8. *Vamini* and *Upapluta Yonivyapada*[28]
9. Ninth Month pregnancy[29]
10. Retained Placenta[30]
11. *Yoni Bhransha* after parturition[31]

Procedure of *Pichu Dharana*

- *Pichu* (Tampoon) should be autoclaved
- Patient should void urine before *pichu* insertion
- Patient should be in supine position with flexed knees
- Sterile *pichu* soaked in medicated oil or liquid should be inserted with index finger into vagina in such a way that thread of the *pichu* should come out of vagina. This facilitates easy removal of *pichu* after 5 to 6 hours

The advantage of this procedure is that the lady can carry this procedure by herself at her home. *Yoni pichu* helps in improving musculature of vaginal canal. *Pichu* can act as wound healing or antibacterial depending upon the drug used.

4) *Yonidhupan* (Vaginal Fumigation)

Yonidhupan is the therapeutic procedure in which vagina is disinfected by giving medicated smoke.

Site - *Bahya Yoni* (Outer part of Vagina)

Period for treatment - 3 to 5 min

Types- According to purpose it is divided into 2 types

1. As a treatment
2. To maintain health

Indications

1. *Yonikandu* [32]
2. *Shweta Pradar*
3. *Apara Sanga*[33]
4. *Garbha Sanga* [34]
5. *Upapluta Yonivyapad* [35]
6. *Raktagulma* [35]
7. *Sutika Paricharya* [35]
8. *Santati Pratibandhak* (as a Contraceptive Measure) [35]

Dhupana Drugs

Kushta (*Saussurea costus)*, *Agaru* (*Aqillaria agallocha*) , *Guggul* (*Comiphera Mukul*), *Vidanga* (*Embelia Ribes*), *Vacha* (*Acorus calamus*), *Nimbapatra* (*Azadirachta indica*)

Procedure

- A stool or chair having opening at the middle should be used
- Patient is made to sit on this chair after voiding the urine
- The drugs used for *Dhupana* are lit in the basin placed just below the chair
- It should be ensured that the smoke originating from the drugs should come in contact with female genitalia.
- Alternatively *Nadi Dhupana* can be done by lighting the drugs in a closed container
- The container is connected to pipe which can be used to give *dhupana*
- Since temperature reaches at peak during *Dhupana*, care should be taken of female genitalia as it is a very sensitive area. *Dhupana* or fumigation has been used for creating aseptic environment. It helps in killing microbes which in turn prevents infections.

5) ***Yoni Lepana* (Vaginal Painting)**

Lepas are the external application dosage form in which the required drugs are mixed with water or any suitable media. The paste made from this mixture is applied locally to the affected area.

Types

1. *Pralep* – Thin *Lepa*
2. *Pradeha* – Very thick *Lepa*
3. *Alepa* - Medium thick *Lepa*

Site: *Prathamavarta* and Breast

Time Duration: 3 to 4 hours or upto drying of lepa.

Indication

1. *Vivrutta Yonivyapada*
2. *Yoni Arsha* (Vaginal Polyp)

Procedure

- The affected part should be cleaned with proper disinfectant
- Prepared *lepa* should be applied to affected area
- The *lepas* should be removed immediately after drying as the dry paste may irritate the skin causing itching or erosions

6) ***Yonivarti* (Vaginal Suppository)**

Varties are suppositories made by mixing powdered drugs with adhesive drugs or binding agents.

Time period – 2 to 3 hours

Indications

- *Karnini Yonivyapad* [36]
- *Acharana Yonivyapad*
- *Yonishopha, Yonikleda, Yonikandu*
- *Yoni paichilya*
- *Kaphaja Yonivyapada*[37]
- *Anartava*

Procedure

- The affected part should be cleaned with proper disinfectant
- Size of *Vartis* should be equal to circumference of index finger.
- These *vartis* should be dried in shade
- These *Vartis* should be wrapped with gauze piece and thread is tied to it.
- It should be autoclaved
- *Varties* should be smeared with Oil, *Ghrita*, honey or milk
- The *varties* should be inserted into vagina in such a way that thread should remain outside of vagina
- After retention period of urine, the *varti* should be taken out and yoni *Prakshalan* (washing of vagina) should be carried out with lukewarm water
- The used *varties* should be discarded for new use. *Varties* are helpful in increasing secretion of vagina and does *shodhana karma*.

7) ***YoniPuran* (Vaginal Packing)**

Yonipuran can be defined as filling of vaginal cavity with powders, pastes, oils or bolus. Generally pastes or *kalkas* are used more frequently than other forms. It has a predominant local therapeutic action.

When retention of drug in large quantity is required then this therapy is commonly preferred.

8) ***Yoni Parishek***

It can be defined as giving hot fomentation with the help of medicated oil to all sides of vagina.

Site: *BahyaYoni* (External part of vagina)

Time period: 5 to 10 min.

Drugs: Oil or medicated oil.

Indications

1. *YoniVrana* (Vaginal Ulcer)
2. *YoniPitika*
3. *YoniShotha* (Vagina Swelling)

Procedure

- Patient should be given supine position with flexed knees
- Lukewarm water or medicated oil is poured from 4 to 5 inch height over vagina

9) ***Pinda Chikitsa***

Insertion of circular paste of boiled drugs wrapped in cloth into vagina is called as *Pinda Chikitsa*. It is *Ushna Veeryatmak* (hot potency) due to direct contact with heat.

Site: *Prathamavarta*

Time Period: 3 to 4 hours

Procedure

- ➢ Mixture of Fine powder of medicinal drugs and water should be boiled
- ➢ After some time oil should be added to this mixture.
- ➢ After proper *paka* of above mixture heating should be stopped
- ➢ This hot semisolid paste formed is kept in sterile cloth and should be tied in circular shape with thread at the upper end (*Pinda)*
- ➢ This prepared Pinda should be inserted in *Prathamavarta*
- ➢ It should be removed out after 3 to 4 hours

CONCLUSION

In *Ayurvedic* Gynaecology *Sthanik Chikitsa* (Local therapies) have lot of prospective in treating Gynaecological disorders. After reviewing all these local therapies it seems that these are described according to disorders of *Tryavarta Yoni* (Vagina). Different dosage forms are used in the form of medicated smoke, medicated tampoons, medicated oil, *kalka* according to necessity of the treatment. The success of these procedures totally depends upon how well these procedures are being adopted by *vaidyas* on the patients. In this Study all these Local therapies are discussed in detail and Standard Operating Procedure of each procedure is given. This study will definitely prove to be helpful to *Ayurvedic vaidyas* in understanding concept of these Local Procedures and in carrying out these procedures in their clinics genuinely.

REFERENCES

1. Lalchand Shastri Vaidya, editor. *Ashtangasangraha*. 2nd ed. Nagpur: Baidyanath Ayurved Bhavan Limited, 1981. P.965
2. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors. *Sushrutasamhita* with *Nimbandhasangraha* Commentary 7th ed. Varanasi: Chaukhambha Orientalia, 2002. P.35
3. Jaymala Shirke, editor. *Ayurvediya Strirogavigyan*, 1st ed. Pune: Tathagat Prakashan 2003 P.159
4. K. R. Shrikantha Murthy, editor. *Ashtangasangraha* Vol. II. *Sharirasthan*. 2nd ed. Varanasi: Chaukhambha Orientalia, 1999. P.13-15
5. K. R. Shrikantha Murthy, editor. *Ashtangasangraha* Vol. II. *Sharirasthan*. 2nd ed. Varanasi: Chaukhambha Orientalia, 1999. P.14
6. Yadavji Trikamji Acharya, editor. *Charaksaamhita Chikitsaasthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.638
7. Harishastri Paradkar Vaidya, editor. *Ashtangahridaya Uttarsthana* 7th ed. Varanasi: Chaukhambha Orientalia, 1982.P.900
8. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors. *Sushruta samhita* with *Nimbandhasangraha* Commentary.*Uttartantra*.7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.350
9. Lalchand Shastri Vaidya, editor. *Ashtanga sangraha uttarsthan* 2nd ed. Nagpur: Baidyanath Ayurved Bhavan Limited, 1981.P.675
10. Lalchand Shastri Vaidya, editor. *Ashtanga sangraha Sutrasthan* 2nd ed. Nagpur: Baidyanath Ayurved Bhavan Limited, 1981.P.776
11. Yadavji Trikamji Acharya, editor. *Charaksaamhita Siddhisthan* 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.720
12. Yadavji Trikamji Acharya, editor. *Charak samhita Siddhisthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.Verse 9/63-65. P.721
13. Lalchand Shastri Vaidya, editor. *Ashtanga sangraha Sutrasthan*. 2nd ed. Nagpur: Baidyanath Ayurved Bhavan Limited, 1981.P.803,806
14. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors.*Sushrutasamhita* with *Nimbandha sangraha* Commentary.Chikitsasthan.7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.537
15. Yadavji Trikamji Acharya, editor. *Charak samhita Siddhisthana*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.721
16. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors. Sushrutasamhita with Nimbandha sangraha Commentary.Chikitsasthan.7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.538
17. Yadavji Trikamji Acharya, editor. *Charak samhita. Siddhisthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.720
18. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors. *Sushrut samhita* with *Nimbandha sangraha* Commentary.*Chikitsasthan*.7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.538
19. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors.*Sushruta samhita* with *Nimbandha sangraha* Commentary. *Chikitsasthan* 7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.538

20. Dr. Brahmanand Tripathi editor. *Sharangadhara samhita* with *Dipika* commentary Reprint. Varanasi: Chaukhambha Surbharati Prakashan,2008.P.369-370
21. Yadavji Trikamji Acharya, editor. *Charak samhita. Siddhisthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.721
22. Jaymala Shirke, editor. *Ayurvediya Strirogavigyan*, 1st ed, Pune: Tathagat Prakashan 2003 P.164
23. Sastri Brahmashankar editor. *Yogaratnakar*. 5th ed. Varanasi: Chaukhambha Sanskrit Sansthan 1993.P.426
24. Yadavji Trikamji Acharya, editor. *Charak samhita Chikitsasthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.638
25. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors. *Sushruta samhita* with *Nimbandha sangraha* Commentary, *Uttartantra*.7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.669
26. Yadavji Trikamji Acharya, editor. *Charaksaamhita Chikitsasthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.636
27. Yadavji Trikamji Acharya, editor. *Charaksaamhita Chikitsasthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.Verse 30/63 p.637
28. Lalchand Shastri Vaidya, editor. *Ashtangasangraha uttarsthan* 2nd ed. Nagpur: Baidyanath Ayurved Bhavan Limited, 1981.Verse 39/49 p.680
29. Yadavji Trikamji Acharya, editor. *Charaksaamhita Sharirsthana*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan1941.P.346
30. Yadavji Trikamji Acharya, editor. *Charak samhita Sharirsthana*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.348
31. K .R. Shrikantha Murthy, editor. *Ashtanga sangraha Vol. II. Sharirasthan*. 2nd ed. Varanasi: Chaukhambha Orientalia, 1999.P.42
32. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors.*Sushrutasamhita* with *Nimbandha sangraha* Commentary.Uttartantra.7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.670
33. Yadavji Trikamji Acharya, editor. *Charak samhita. Sharirasthana*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan.1941. P.342
34. Yadavji Trikamji Acharya, Narayan Ram Acharya, editors. *Sushrutasamhita* with *Nimbandhasangraha* Commentary.*Chikitsasthan*.7th ed. Varanasi: Chaukhambha Orientalia, 2002.P.388
35. Jaymala Shirke, editor. *Ayurvediya Strirogavigyan*, 1st ed. Pune: Tathagat Prakashan 2003 P.167
36. Yadavji Trikamji Acharya, editor. *Charak samhita*. *Chikitsasthan.* 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.639
37. Yadavji Trikamji Acharya, editor. *Charak samhita Chikitsasthan*. 3rd ed. Varanasi: Chaukhambha Surbharati Prakashan,1941.P.638

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EFFECT OF *DARUHARIDRA* (*Berberis aristata*) *CHURNA* WITH *DURVA* (*Cyanodon dactylon*) *SWARASA* IN '*RAKTAPRADAR*' A CLINICAL STUDY

More Sunil S.[1*] **More Manjusha S.**[2]

1. Professor & Head, Department of Streerog & Prasutitantra, S. S. Ayurved College, Panchavati, Nashik, M.S.-422003, Email Id: sunilmore68@rediffmail.com

2. Associate Professor & Head, Department of Panchakarma, S.S.Ayurved College, Panchavati, Nashik.M.S. (India) Email Id: manjushamore74@rediffmail.com

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***Corresponding Author**

More Sunil S.
Professor & Head,
Dept. of Streerog &
Prasutitantra,
S. S. Ayurved College,
Panchavati, Nashik, M.S.-
422003,
Email Id:
sunilmore68@rediffmail.com

QR Code IJAAM

ABSTRACT:
Ayurvedic authors have greatly emphasized the importance of healthy offspring for which female should be in good health. She may suffer from different gynaecological diseases affecting childbearing capacity of her. These are described under the heading of '*Yonivyapad*' in *Ayurvedic* books. Considering this, it is necessary to pay attention towards managing different gynaecological conditions. *Raktapradar* is a serious condition in gynaecology. Nowadays as it has a complication like *pandu* (chronic anemia) and even sterility. Therefore, we decided to find out simple remedy for this disease. Hence, the objective was to study the effect of *Berberis aristata* powder with *Cyanodon dactylon*. A Clinical trial was conducted on outdoor patients (i.e. O.P.D.) and indoor patients (i.e. I.P.D.) diagnosed with *Raktapradar*. The patients was given with an *Ayurvedic* drug and monitored according to protocol including clinical & pathological parameters. The selected patients were 45 out of which 30 patients were included for experimental group and 15 patients were given placebo (i.e. control group). The criteria for selection of patients are 'Inclusive' and 'Exclusive'. Patients from Inclusive criteria having excessive p/v bleeding were selected. Clinical symptoms were assessed with four grades as follows: Nil: 0, Mild: +, Moderate: ++, Severe: +++.Criteria for assessment were Marked, Moderate and Mild. Results were noted and it was observed that the selected drug was effective & safe.

Key Words: *Raktapradar*, *Berberis aristata*, *Cyanodon dactylon*, p/v bleeding, *yoni vyapad*

INTRODUCTION:

Ayurved is a science of life, which tells us how to live and enjoy a good and healthy life. We can say that *Ayurved* were originated since the origin of life. Therefore, the existence of *Ayurved* is from ancient age time. It is the nature's rule that everything produced and bound to destroyed after some time. As time passes, degenerative changes occur so this rule is also applicable for living things.

That is the life of everyone; therefore, life is bound to be destroying after some time. In modern medicine, this process is named as ageing. Ayurved is the science which guides us about our daily routine. It tells us our '*Dinacharya*', different diseases, rules of *Ahar and Vihar* (Dietary Regimen and Do's and Dont's). By following these we can live without diseases and much trouble. This can be called as '*Niramay life*' (healthy life). By giving *Rasayan Chikitsa* (Rejuvenating treatment*)* this ageing process can be postponed and healthy life can be enjoyed. Delaying ageing is the speciality of Ayurved.[1] The prospect about this medical science is all medicine is derived from God and without him it cannot exist or prosper. *Ayurved* is one of crucial branch of the medical science. It is a precious gift from God Brahma to us.
The aim of *Ayurved* is maintaining the health of person and not only treating the diseases. Ayurved is the science of life which teaches us how to live an undiseased and healthy, long life.

Ayurved is mainly divided in eight different branches. These are *Kaya* (general medicine), *Bala* (paediatrics), *Graha*, *Urdhvanga* (E.N.T. & Opthalm), *Shalya* (Surgery), *Danshtra* (Forensic medicine), *Jara*(Geriatrics), *Vrusha* (Aphrodiasic).The detail study of *stree-rog and prasutitantra* (Gynae & Obs)[2] is described in details in *Kaumarbhrutyatantra*. This branch deals with different *stree-rog*, *prasutitantra* and different diseases of new born and child also. The *Chikitsa* (treatment) of different diseases was given appropriately and paid perfect attention to the same diseases in different Ayurvedic authors like Charak, *Sushrut*, and *Vagbhat* etc.

While considering the disease, *Chikitsa* (treatment) etc. he considered '*Stree*'as *Rajaswala* (menarche) only after twelve years. The previous age is included as *Balak* that is why included in *Kau marbhrutya* only. According to modern medicine also woman for *Chikitsa* (treatment) is considered as *Stree* from menarche to menopause only. The different diseases in this particular period are described in detail in *stree-rog*.[3] In ancient *Ayurvedic* books, the authors have given more importance to *suprajanan* (healthy offspring).For this *Stree* should be *Arogyasampanna* (healthy) & *Vyadhirahit* (un-diseased). For this they have prescribed the *paricharya* (Regimen) to be observed for avoiding *vyadhis* (diseases). So *paricharya* (regimen) is absolutely important and it should be observed strictly. If it is not followed, she may have different *stree-rog*, *yonivyapad* etc.

Considering the above-mentioned things, it is necessary to pay an attention to treatment of different *vyadhis* (diseases) in women and for this purpose the subject is being chosen as 'Raktrapradar' is being serious *vyadhis* (disease) in females today. Nowadays *Raktapradar* is a major illness in the women due to its complications like *Pandu* (chronic anaemia) which is a chronic disease, the woman becomes disabled, and even sterility can be a complication. For this purpose, the subject is being chosen.

MATERIALS & METHODS:

Procurement of Raw Materials: *Berberis aristata* powder and *Cynodon dactylon* extract were used as raw materials.

Accessory Drugs: *Daruharidra Churna* was collected from local market of Nashik, Maharastra and authenticated as per classical texts mentioned. [4] Sample of *Cynodon dactylon* were procured from S.S.Ayurved College, Herbal garden at Nashik, Maharastra. Authenticity of material was confirmed by experts of respective fields,their originality,purity was identified and selected as per standard mentioned in Ayurvedic pharmacopoeia of India (A.P.I.)[5].*Berberis aristata* powder & *Cynodon dactylon* extract were selected [Table No.1].

Table No. 1 Drug analysis data of *Berberis aristata* & *Cyanodon dactylon*:

Particular	*Berberis aristata*	*Cyanodon dactylon*
Total ash content	04.2	08.7
Acid insoluble ash	02.1	03.4
Water soluble ash	74.5	80.2
Moisture content	25.2	15.1
Foreign matter	0.62	0.54
Alcohol soluble extractive	03.8	04.2
Water soluble extractive	7.12	11.2

Method:

30 Patients from experimental group as per previously stated criteria (Inclusive Criteria) were selected & provided *Berberis aristata* powder with *Cyanodon dactylon* extracts twice daily, by orally. *Yog* (drug) given below is selected.

Contents:

Berberis aristata powder - 1gram

Dose – 1gram * Twice daily with *Anupan* (adjuvants) –*Cynodon dactylon* extract -10 ml.

Duration- 3, 5 and 7 days

WORK PROFILE:

30 patients from experimental group as per previously stated criteria were selected & provided *Berberis* aristata powder with *Cyanodon dactylon* extracts twice daily orally.

Randomized Selection of patients:

1. Inclusive Criteria:

Female patients above 20 yrs age complaints of excessive P/v bleeding were selected. 2.Exclusive Criteria:The patients having other complication such as fibroid ,polyp, malignancy, hypertention,tuberculosis,diabetis mellitus were totally excluded from the study point of view. There is specific cause for Raktapradar, which is total pathological & may be cured by treating the cause only.

Control Trial Selection of method:

Patients from indoor & outdoor department as per previously stated criteria were selected. Out of 45, Experimental group patients were 30 and 15 patients were in Control group. As per proforma of case sheet, detailed history, clinical findings were recorded.

Clinical Symptoms were assessed with four grades as follows:

a) Nil- 0
b) Mild- +
c) Moderate - + +
d) Severe - + + +

Following signs and symptoms for assessment were as follows:

1. p/v bleeding
2. Lower abdominal pain.\
3. Pallor
4. Body ache.
5. Backache.

6. Giddiness.
7. Anorexia.
8. Vomiting.

Following investigations were done:

Haemogram
HIV
VDRL
USG (Pelvic)
If necessary- Fundoscopy
Liver function test

The following criteria for Assessment:

A. Marked Result p/v bleeding control within 3 days.
B. Moderate Result p/v bleeding control within 5 days.
C. Mild Result p/v bleeding control within 7 days.

RESULT:

Clinical study and related observations:

Combined Study i.e. patients in experimental group and patients in control group are shown in figure as given below.

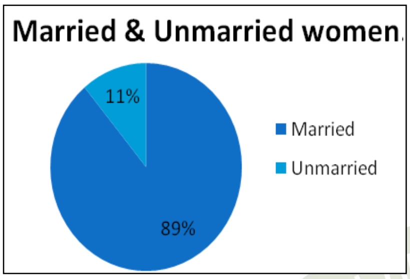

Figure No.1 Raktapradar according to Married and Unmarried

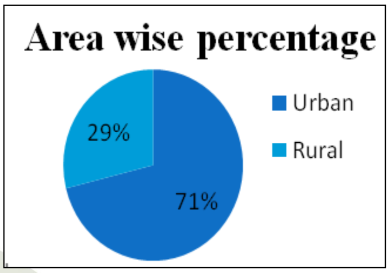

Figure No.: 2 *Raktapradar* considering Urban & Rural Area

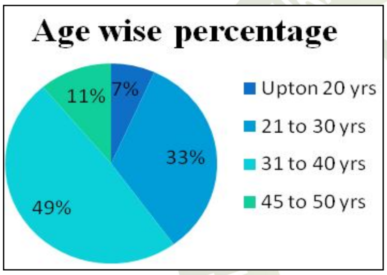

Figure No.3 Raktapradar considering age of the patients

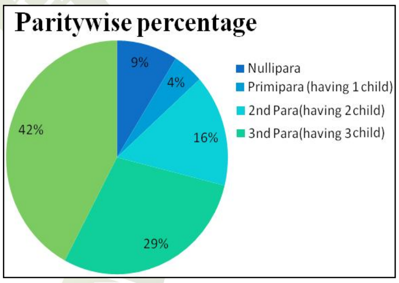

Figure No. 4 Raktapradar Considering Parity of the patients

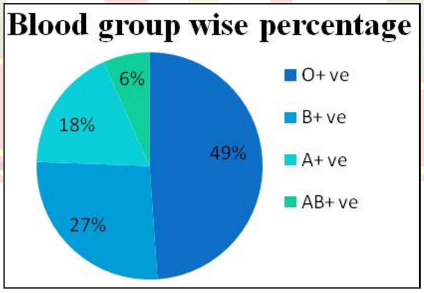

Figure No. 5 Raktapradar considering Blood group of the patients

STUDY OF RAKTAPRADAR AND IT'S ASSOCIATED SYMPTOMS:

Study of *raktapradar* and its associated symptoms are summarised in the table given below

Table No. 2 (i) : p/v bleeding wise distribution of patients in experimental group

Result	No. of Patients	Percentage
Marked	16	53.33%
Moderate	08	26.67%
Mild	06	20%

Table No. 2 (ii): A symptom of p/v bleeding wise distribution of patients in control group

Result	No. of Patients	Percentage
Marked	0	0
Moderate	02	13.33
Mild	01	06.67
No result	12	80

Table No. 3 (i): A symptom of lower abdominal pain wise distribution of patients in experimental group

Result	No. of patients	Percentage
Marked	13	43.33
Moderate	09	30
Mild	02	06.67
Lower abdominal pain absent in 6 patients (i.e.20%)		

Table No. 3 (ii): A symptom of lower abdominal pain wise distribution of patients in control group

Result	No. of patients	Percentage
Marked	01	06.67
Moderate	01	06.67
Mild	01	06.67
Lower abdominal pain absent in 7 patients (i.e.46.66%)		
NoResult	5	33.33

Table 4 (i) A symptom of Pallor study of experimental groups

Result	No. of Patients	Percentage
Marked	16	53.33
Moderate	08	26.67
Mild	02	13.33
Pallor was absent in 2 patients (i.e.06.67%)		

Table No.4 (ii): A symptom Pallor wise distribution of patients in control group

Result	No. of Patients	Percentage
Marked	0	0
Moderate	01	06.67
Mild	02	13.33
Pallor was absent in 5 patients (i.e.33.33%)		
No Result	07	46.67

Table 5 (i) A symptom of Body ache study of experimental groups:

Result	No.of patients	Percentage
Marked	06	20
Moderate	14	46.67
Mild	10	33.33

Table No.5 (ii): A symptom of body ache of patients in control group

Result	No. of Patients	Percentage
Marked	0	0
Moderate	02	13.33
Mild	01	06.67
No Result	12	80

Table 6 (i) Symptom of Backache study of experimental groups

Result	No. of Patients	Percentage
Marked	08	26.67
Moderate	12	40
Mild	07	23.33
Backache was absent	03	10

Table No.6 (ii): A symptom of Backache wise of patients in control group

Result	No. of Patients	Percentage
Marked	0	0
Moderate	01	06.67
Mild	01	06.67
Backache was absent 3 (i.e. 20%)		
No Result	10	66.66

Table 7 (i) A symptom of Giddiness study of experimental groups

Result	No. of Patients	Percentage
Marked	16	53.33
Moderate	04	13.33
Mild	02	06.67
Giddiness was absent	08	26.67

Table No.7 (ii): A symptom of Giddiness wise distribution of patients in control group

Result	No. of Patients	Percentage
Marked	0	0
Moderate	01	06.67
Mild	02	13.33
Giddiness was absent in 5 patients (i.e.33.33%)		
No Result	07	46.67

Table 8 (i) A symptom of Anorexia study of experimental groups

Result	No. of Patients	Percentage
Marked	12	40
Moderate	06	20
Mild	02	06.67
Anorexia was absent	10	33.33

Table No8 (ii): A symptom of Anorexia wise distribution of patients in control group

Result	No. of Patients	Percentage
Marked	00	00
Moderate	01	06.67
Mild	01	06.67
Anorexia was absent in 5 patients (i.e.33.33%)		
No Result	08	53.33

Table 9 (i) A symptom of Vomiting study of experimental groups

Result	No. of Patients	Percentage
Marked	03	100
Moderate	00	00
Mild	00	00
Vomiting was absent in 27 patients out of 30		

Table No 9 (ii): A symptom of Vomiting study of patients in control group

Result	No. of Patients	Percentage
Marked	00	00
Moderate	00	00
Mild	00	00
Vomiting was absent in all patients out of 15		

Phytoconstituents of *Berberis aristata*: Alkaloids, berberine, oxyberberin, palmatine, jatrorhizine, tetrahydropalmitine [5], etc.

Phytoconstituents of *Cyanodon dactylon*: Phenolic phytotoxins (Ferulic, Syringic, P-coumaric, Vanillic, p-hydroxybezoic &.o-hydroxy phenyl acetic acid) [5].

DICUSSION:

At this study of Raktapradar it has been found that various authors have described the Raktapradar *Vyadhi* (disease) in detail.

After studying different samhitas the main *Chikitsa* (treatment) for Raktapradar is *Raktasthambhan* (controlled blood loss) as *sakshat raktadatu* (blood) is lost per vaginally so it is to be preserved.

For raktasthambhan (controlled blood loss) and raktasangran (aggragation of blood), different *Acharyas* (authors) have described *dravyas* with their various *kalpas*. *Berberis aristata* powder with *Cyanodon dactylon* extract is drug as a whole has a *Raktashodhaka* (purification of blood), *Rakta stambhaka* (controlled blood loss), *shothahar* (anti inflammatory, *Vedanasthapana* (analgesic), *Deepana* (Appetizer), *Grahi* (water absorbant), *Jvaraghna* (anti pyretic) properties and *Cyanodon dactylon* extract is best *Raktastambhaka* (controlled blood loss).It cures raktapitta emaciation, giddiness, intoxication,chronic fever[6].

After studying modern aspect, we may conclude that the disease Raktapradar is analogous to dysfunctional uterine bleeding for D.U.B. They have told a treatment which is totally hormonal. As long as the treatment is continued, the disease is controlled but it again recurs when hormonal treatment is discontinued and finally hysterectomy is advised. So there is no perfect medical treatment for this troublesome disease [7].

It is observed that these types of patients are very common, thus there was no problem for selec- tings the cases.

Total patients selected for study were 45.Out of 45, 30 patients were selected for experimental group & 15 patients were selected for control group.

From Figure 1 out of 45 patients, 40 patients were married and 5 patients were unmarried. So we can say that Raktapradar is more commonly found in married women but unmarried and menopausal age is no bar for Raktapradar.

From Figure 2: out of 45 patients, from urban areas were 32 and patients from rural area were 13.So it was observed that the women from urban area suffer least from this disease because they consult the doctor immediately while women from rural area perhaps do not consult doctor unless it is severe.

From Figure 3:Out of 45 patients after considering age of the patients it was observed that Raktapradar commonly found in the age group 31 to 40 years and next to it was found in the age group 21 to 30 years.

From Figure 4: We may conclude that chances of Raktapradar are more as parity increase. It is more in multiparous.

From Figure 5: After considering the blood group of each patient, we found that Raktapradar is comm only found in O +ve group. It is also scientifically proved that O +ve blood group persons are more susceptible to peptic ulcer.

The observation and discussion according to main symptoms and their result i.e. Marked, Mode- rate and Mild in 45 patients is as follows:

a) P/v Bleeding: All 45 patients were of p/v bleeding i.e.raktapradar.We found that maximum rakta- stambhak effect was seen by using *Berberis aristata* powder with *Cyanodon dactylon* extract on Experimental Group patients.[Table No.2 (i) and (ii)]. However, it was not totally cured in some patients but the quantity of p/v bleeding was lesser as seen in moderate and mild results and in Control Group, no result was found in 12 patients.

b) In associated symptom lower abdominal pain, out of 30 patients in experimental group, the symp -tom was found to be absent in 6 patients.13 patients (i.e.43.33%) gave marked result, 9 patients (i.e.30%) patients gave moderate result and 2 patients have got mild result. There was good relief observed in lower abdominal pain because p/v bleeding was lesser by use of *Berbers aristata* powder with *Cyanodon dactylon* extract. But in control group patients marked, moderate and mild result was found in 1 patient each and no result was found in5 patients. So it was observed that Placebo powder was not much effective [Table No.3 (i) and (ii)].

c) In experimental group-pallorness was present in 28 patients out of 30 patients it was found that pall orness was relieved, as p/v bleeding was less.In control group pallorness was present in 10 patients out of 15 patients. Least effect was observed in these patients [Table No.4 (i) and (ii)].

d) All 45patients were having associated symptom bodyache. In experimental group, we found that 6 patients (20%) have got marked result, 14 patients (i.e.46.67%) have got moderate and 10 patients (33.33%) have got mild result. So in maximum patients of bodyache was relieved through in some patients it was not totally relieved its severity was decreased. In control group patients no result was found in 12 patients we observed that placebo powder gives very less effect [Table No.5 (i) and (ii)].

e) In Experimental group out of 30 patients 27 patients were having complaint of backache.We found that 8 patients (i.e.26.67%) have got marked result, 12 patients (i.e.40%) have got moderate and 7 patients (i.e.23.33%) have got mild result.We found that in maximum patients backache was relieved. In control group patients out of 15 patients, 12 patients were suffering from backache. We found that 1 patients have got moderate and 1 patient have got mild and no result was found in 10 patients.We observed that placebo drug was not much effective [Table No.6 (i) and (ii)].

f) Out of 30 patients in experimental group,22 patients were found to have giddiness.We found that 16 patients (i.e.53.33%) have got marked, 4 patients (i.e.13.33%) got moderate and 2 patients (i.e.6.67%) gives mild result. so there was maximum relief in giddiness.In control group 9 patients was having giddiness. We found that 1 patient has got moderate and 2 have got mild result, no result was found in 6 patients. We observed that placebo drug was not much effective [Table No.7 (i) and (ii)].

g) Out of 30 patients in experimental group, 20 patients were having anorexia.We found that 12 patients (i. e.40%) have got marked and in 6 patients (i.e.20%) have got moderate, 2 patients (i.e.6.67%) patients gave mild result.There was maximum relief in symptom anorexia, in some patien ts its intensity was decreased. In control group 10 patients was having anorexia, 1 patient gave moderate, 1 patient have got mild and 8 patients had no result using placebo drug [Table No.8 (i) and (ii)].

h) Vomiting was present in 3 patients in experimental group; there was 100% relief in this symptom also. In control group, Vomiting was absent [Table No.9 (i) and (ii)].

Overall effect of therapy:

The overall effect of therapy on *Raktapradar* (*Dysfunctional uterine bleeding*) suggests that number of patients showed highly significant improvement in p/v bleeding, Pallor, Bodyache, Backache,Giddiness, Anorexia, Vomiting However, Lower abdominal pain shows significant improvement.

CONCLUSION:

Raktapradar is mainly found in housewives and married women, between the age group of 31 to 40 years. We may conclude that chances of *Raktapradar* are more as parity increase. It is more in multi parous. From the socio economic view *Berberis aristata* powder with *Cyanodon dactylon* extract is economically cheaper. It is easy to prepare, easy to take and was found effective in acute condition also. The result of the clinical trials is a proof to say that, *Berberis aristata* powder with *Cyanodon dactylon swarasa* has definite role in the treatment of Raktapradar. Pervaginal bleeding, body ache, backache which are the main symptoms of *Raktapradar* are treated well with the use of *Beberis aristata* powder with *Cyanodon dactylon swarasa* for the specific period. From the above discussion we can conclude that *Berberis aristata* powder with *Cyanodon dactylon* extract shows its maximum positive effect in the disease. *Raktapradar* is described in different books. A wide scope for further studies of the same drug on the same disease is found even today.

REFERENCES:

1. Acharya Vidyadhar Shukla, Ravi Datta Tripathi, editors. *Charaka Samhita of Agnivesa*.Vol.2, 2002. CSPCA-30 Varanasi , Page.779 and 781.
2. Kaviraj Atrideva Gupta, editor. *Astanga Sangraha Sharira Sthana*, Reprient 2005.page 262 (1-11).
3. Premavati Tivari, editor. *Ayurvediya Prasutitantra Evam Striroga*.2nd ed. Chaukhambha Orientalia,Varanasi, 1st part- chapter-1.page57-62 and 2nd part chapter-2 .page 172-219
4. K.R. Kivtikar and B.D. Basu, editors. *Indian medicinal plants*.2nded. Uttaranchal (India): Oriental Enterprises; 2001 Vol.1 page 139-141. Vol.2.page 3692-3696.
5. Government of India, Ministry of Health & Family Welfare Department of Ayurveda, Yoga, Naturopathy, Unani, Siddha & Homoeopathy (AYUSH).*The Ayurvedaaic Phamacopoeia of India*, New Delhi; 1st ed. Part- 1, Vol.4.page 30
6. J.K. Ojha, editor, *A Hand Book of Dravyaguna*.1st.ed.Sanskrit Pratishthan. vanaspatika Dravya Varanasi, Chaukhamba 2004 page 81 and 92.
7. T. N. A. Jeffcoate, editor. *Principles of Gynaecology*. 3rd. London. Butterworth & co. Ltd Publication, 1967, Page. 659-683.

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EXPERIMENTAL STUDY OF *BODHAKA KAPHA* WITH SPECIAL REFERENCE TO TASTE PERCEPTION

Mahendra Bansilal Toshniwal, [1*] **Ravindra Sahebrao Kharat** [2]

1. *Assistant Professor, Dept of Sharirkriya, CSMSS Ayurved Mahavidyalaya, Kanchanwadi, Aurangabad. Email: tdr.mahendra@yahoo.com, Mobile :+91 9850229994.

2. Associate Professor, Dept. of Dravyaguna Vigyan, CSMSS Ayurved Mahavidyalaya, Kanchanwadi, Aurangabad. Email:ravikharat2@gmail.com, Mobile :+91 9822281494

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EXPERIMENTAL STUDY OF *BODHAKA KAPHA* WITH SPECIAL REFERENCE TO TASTE PERCEPTION

***Corresponding Author**

Mahendra Bansilal Toshniwal
Assistant Professor,
Dept of Sharirkriya, CSMSS
Ayurved Mahavidyalaya,
Kanchanwadi, Aurangabad,
Mobile: +91 9850229994.
Email:tdr.mahendra@yahoo.com

QR Code IJAAM

ABSTRACT:

According to the modern science, saliva dissolves substances and it is responsible for taste as well as digestion of carbohydrates. *Ayurveda* has mentioned six different types of taste that are called as *Rasa. Bodhak Kapha* is located at the base of tongue and pharynx. It is responsible for the perception of taste. The present article aims to find out, the content of saliva which is responsible for taste perception and to study the similarities among salivary content and *Bodhak Kapha* according to modern and ancient aspect. The present study concluded that *Bodhak Kapha* is physiologically and functionally similar to salivary content mucin.

Key Words: *Bodhak Kapha, Rasa, Mucin,* Taste Perception, Saliva.

INTRODUCTION:

According to *Ayurveda*, there are three basic *Doshas* i.e. *Vata, Pitta* and *Kapha*. [1] *Kapha Dosha* is one of the functional unit of the body. *Kapha Dosha* is classified into five types that are *Avalambaka Kapha, Kledak Kapha, Tarpak Kapha, Sleshaka Kapha* and *Bodhak Kapha*. [2] *Bodhak Kapha* is located at the base of tongue and pharynx. It is responsible for the perception of taste [3] *Kapha* that remains at the tongue and attributable to its water content it is capable for perception of taste [4] Breakdown of food under the influence of *Tejas* element of saliva is not highlighted by *Bruhatrayee*. Reference to the function of *Tejas* element to the saliva is mentioned in *Ayurved sutra* by *Yogananda's Natha* commentary. [5] According to the modern science, saliva dissolves substances and it is responsible for taste as well as digestion of carbohydrates. [6] *Ayurveda* has mentioned six different types of tastes that are called as *Rasa.* [7] These *Rasas* are *Madhura, Amla, Lavan, Katu, Tikta* and *Kashaya*. [8] *Jala* (water) is *Yoni* of *Rasa.* [9] *Rasa* (taste) is perceived by *Jivha* (tounge). [10] Hence six *Rasa Dravyas* in powder form are preferred for present study.

On the basis of above facts *Bodahka Kapha* studied comparatively, literature wise and experimentally. The present article aims to find out the content of saliva which is responsible for taste of perception and to study the similarities among salivary content and *Bodhak Kapha* according to modern and ancient aspect. The aim of present study is to explore the *Ayurvedic* concepts of *Bodhak Kapha* by modern science.

AIMS AND OBJECTS:

1. To study the *Bodhak Kapha* literature wise through modern and *Ayurvedic* texts.
2. To study the similarities among salivary contents and *Bodhak Kapha*, according to modern and *Ayurvedic* aspects.
3. To study *Bodhak Kapha* experimentally with reference to taste perception.

MATERIALS AND METHODOLOGY:

Study Design: Observational and Experimental Study.

Materials

1. For present study 30 volunteers were selected.
3. Fine Powders of six different *Ayurvedic* drugs were selected.
4. Aqueous solutions of six different *Ayurvedic* drugs were selected.
5. Digital Stop watch
6. *Rasa* (taste) of these drugs is well known to *Ayurveda*.

Inclusion Criteria

1. 30 healthy volunteers were included.
2. Age group of 20 to 40 years was included
3. Both males and females are selected
4. Volunteers were randomly selected irrespective of their socio-economic status and religion.

Exclusion Criteria

1. Tobacco chewers were excluded
2. Smokers were excluded

3. Persons having teeth, gums and oral cavity disorders were excluded
4. Individuals suffering from Diabetes Mellitus, Cancer, Neurological disorders were excluded
5. Volunteers of *Jivha Samatva* (Coated tongue) were excluded.

Table 1 Drugs Selected for Current Study

Sr No	**Drug**	**Botanical names**	**Part used**	***Rasa***
1	*Yashtimadhu*	*Glycarriza glabra*	Stolon	*Madhur*
2	*Amra* (dried)	*mangifera indica*	Fruit	*Amla*
3	*Samudra Lavan*(salt)	*NaCl*	-	*Lavan*
4	*Maricha*	*Piper nigrum*	Fruit	*Katu*
5	*Nimba*	*Azadiracta indica*	Bark	*Tiktа*
6	*Jambu*	*Eugenia jamboolena*	bark	*Kashaya*

Method Used: Taste Threshold Method [11]

As per texts *Bodhak Kapha* is responsible for perception of taste. [3] *Ayurveda* has described six different tastes(*Rasas*). [8] *Jala* is *Yoni* of *Rasas* [9] i.e. rasa percepts when it dissolves in water or saliva. On the basis of above hypothesis Powdered *Dravya* slowly dissolves in saliva and aqueous solutions of *Dravya* dissolves rapidly in saliva. Hence 30 healthy volunteers were subjected to taste each *Dravya,* in fine powdered and aqueous solutions form. The study was conducted for 12 days. The sample was given in the morning. The subject was nil by mouth till the sample was given to him. The volunteer was asked to keep his eyes closed. In first six days each group was given fine powder of each *Dravya* for taste. In next six days each group was given aqueous solutions of each *Dravya* for taste. Observations of taste and time taken for perception of taste were made. Taste was assessed by Taste Threshold Method. [11] Time is calculated with the help of Digital stop watch. Stop watch was given to volunteer when he percept the taste the switch is paused and the time was observed.

OBSERVATIONS AND RESULTS:

Relative study of Different taste perceptions was done. It was observed that taste perception of powdered drug was slightly delayed; taste perception of aqueous solution was quick as compared with powdered drug, except salt taste. In aqueous solution taste perception of *Amla* and *Katu Rasa Dravyas* was rapid as compared to powdered drug. In case of *Katu, Amla* and *Lavan Rasa* salivary secretions were more. The exact observations of time taken for perception of taste in powdered drug and aqueous solution of drug are tabulated in table 2 and table 3 respectively.

Table 2 Time taken for Perception of Taste of Fine powders

Sr No	**Time taken to percept taste (minutes:seconds)**					
	Madhur	*Amla*	*Lavan*	*Katu*	*Tikta*	*Kashaya*
1	00:10:66	00:07:78	00:03:50	00:11:47	00:04:59	00:12:31
2	00:22:19	00:09:13	00:02:16	00:09:72	00:04:22	00:11:87
3	00:10:43	00:05:50	00:03:28	00:12:60	00:06:00	00:10:85
4	00:08:53	00:05:88	00:03:13	00:15:06	00:04:41	00:11:85
5	00:10:68	00:06:40	00:04:06	00:10:65	00:04:98	00:12:05
6	00:17:15	00:05:68	00:02:28	00:10:48	00:04:67	00:11:08
7	00:11:08	00:06:00	00:03:18	00:09:82	00:06:03	00:12:31
8	00:10:11	00:06:53	00:03:20	00:11:69	00:05:58	00:12:07
9	00:10:82	00:08:00	00:03:35	00:13:06	00:06:15	00:12:44
10	00:14:07	00:09:13	00:03:55	00:14:10	00:07:00	00:11:50
11	00:12:63	00:07:17	00:03:14	00:13:58	00:06:58	00:10:47
12	00:08:87	00:08:20	00:02:22	00:10:54	00:05:10	00:10:63
13	00:09:14	00:06:40	00:01:55	00:09:65	00:05:25	00:11:97
14	00:09:20	00:09:10	00:02:10	00:09:70	00:04:68	00:12:00
15	00:10:05	00:08:00	00:02:25	00:10:65	00:05:60	00:11:05
16	00:10:44	00:05:18	00:03:00	00:11:40	00:04:90	00:10:98
17	00:11:25	00:06:10	00:02:15	00:10:55	00:04:48	00:10:60
18	00:10:37	00:07:00	00:03:05	00:09:10	00:04:98	00:11:66
19	00:11:04	00:06:56	00:03:10	00:11:47	00:05:15	00:11:95
20	00:11:52	00:05:50	00:03:28	00:11:15	00:06:00	00:12:60
21	00:10:66	00:05:98	00:02:30	00:11:25	00:06:20	00:12:85
22	00:10:43	00:06:45	00:03:10	00:11:41	00:05:98	00:11:07
23	00:10:55	00:05:37	00:02:18	00:09:55	00:06:03	00:10:63
24	00:10:15	00:07:78	00:03:38	00:10:02	00:04:98	00:10:65
25	00:09:53	00:08:00	00:02:58	00:10:10	00:05:25	00:09:72
26	00:08:58	00:09:19	00:02:45	00:09:58	00:05:48	00:11:47
27	00:08:53	00:09:13	00:02:25	00:09:40	00:05:98	00:11:69
28	00:10:85	00:06:53	00:02:10	00:09:80	00:04:62	00:10:48
29	00:09:14	00:08:20	00:02:18	00:12:00	00:04:50	00:11:85
30	00:10:17	00:07:17	00:03:01	00:15:06	00:04:47	00:10:65

Table 3 Time taken for Perception of Taste of Aqueous solutions

Sr No.	Time taken to percept taste (minutes:seconds)					
	Madhur	*Amla*	*Lavan*	*Katu*	*Tikta*	*Kashaya*
1	00:05:41	00:04:50	00:00:94	00:05:06	00:02:93	00:02:53
2	00:04:10	00:04:44	00:01:00	00:06:25	00:02:13	00:02:57
3	00:05:35	00:04:34	00:01:10	00:04:50	00:03:73	00:03:10
4	00:05:37	00:05:07	00:02:13	00:04:03	00:02:63	00:02:46
5	00:05:13	00:03:62	00:00:97	00:05:06	00:02:20	00:02:14
6	00:05:48	00:04:58	00:01:05	00:04:48	00:03:10	00:02:58
7	00:04:18	00:04:94	00:00:98	00:05:26	00:03:05	00:02:45
8	00:05:25	00:05:03	00:01:10	00:06:00	00:02:16	00:02:10
9	00:05:35	00:05:00	00:01:18	00:05:50	00:02:78	00:02:48
10	00:04:47	00:04:62	00:01:05	00:04:10	00:01:96	00:02:18
11	00:05:25	00:03:82	00:01:15	00:04:28	00:02:05	00:02:43
12	00:04:41	00:03:98	00:00:97	00:06:15	00:03:13	00:02:47
13	00:04:60	00:04:54	00:00:92	00:05:10	00:02:18	00:02:90
14	00:05:02	00:04:38	00:00:95	00:05:16	00:02:68	00:02:56
15	00:04:98	00:03:92	00:00:98	00:04:18	00:02:25	00:02:24
16	00:05:10	00:04:18	00:01:03	00:04:03	00:02:08	00:02:15
17	00:04:48	00:04:10	00:01:00	00:05:10	00:01:99	00:02:68
18	00:05:10	00:04:22	00:01:15	00:05:06	00:02:45	00:02:98
19	00:04:70	00:03:88	00:01:05	00:05:15	00:02:59	00:02:80
20	00:04:98	00:04:09	00:01:93	00:04:45	00:02:90	00:02:88
21	00:04:84	00:04:05	00:00:98	00:04:90	00:02:68	00:02:75
22	00:05:64	00:03:92	00:00:97	00:05:00	00:02:82	00:02:68
23	00:05:00	00:04:02	00:00:65	00:04:60	00:03:00	00:02:60
24	00:05:03	00:04:05	00:00:68	00:05:08	00:02:70	00:03:00
25	00:04:64	00:04:10	00:00:80	00:04:48	00:03:15	00:02:87
26	00:04:95	00:05:00	00:00:98	00:05:03	00:02:48	00:02:48
27	00:04:78	00:04:68	00:00:99	00:04:98	00:02:28	00:02:15
28	00:05:48	00:03:78	00:01:00	00:05:05	00:02:70	00:02:46
29	00:05:51	00:04:09	00:01:90	00:04:63	00:02:82	00:02:58
30	00:05:25	00:04:18	00:01:18	00:04:23	00:02:68	00:02:48

Table 4: Comparative Statistical analysis of six rasas in powder and aqueous solution form

Rasa	Mean		SD		SE		Confidence interval	t value	p value
	Powdered	Solution	Powdered	Solution	Powdered	Solution			
Madhur	10.9607	4.9943	2.7253	0.4045	0.4976	0.0738	5.9663	11.8611	> 0.0001
Amla	7.1007	4.3040	1.2826	0.4112	0.2342	0.0751	2.7967	11.3727	> 0.0001
Lavan	2.7687	1.0920	0.5972	0.3279	0.1090	0.0599	1.6767	13.4799	> 0.0001
Katu	11.1537	4.8960	1.6466	0.5826	0.3006	0.1064	6.2577	19.6229	> 0.0001
Tikta	5.3280	2.6093	0.7299	0.4237	0.1333	0.0774	2.7187	17.6434	> 0.0001
Kashya	11.4433	2.5577	0.7695	0.2722	0.1405	0.0497	8.8857	59.6256	> 0.0001

Statistical Analysis:

- Sample size was 30
- The Data was in Quantitative form – Time taken for taste perception in Seconds and Milliseconds
- The data was Unpaired – As the observations were made on the same 30 individuals but at different times by the same methodology
- Unpaired t test was applied.

DISCUSSION:

Literary review of Bodhak kapha and saliva concludes that function of saliva and Bodhak Kapha for taste perception is almost same. According to modern science the constituents of saliva are similar to plasma. Ptyalin a chief constituent of saliva is responsible for digestion of carbohydrates although Mucin have protective function on oral cavity and it also helps in deglutition. [12]

Ayurveda describes that *Utpatti* of *Bodhak Kapha* is from *Rasadhatu*. [13] Symptoms of *Raskshaya* and *Kaphakshaya* are same e.g.in *Talushosha* quantity of *Lalastrava* is decreased, and it nomalises after intake of *Jaliya Dhatu*(fluids).the symptoms of *Rasadhatuvruddhi* and *Kaphavruddhi* are same e.g. in *Praseka Lalastrava* is increased. It is observed according to *Samanya* and *Vishesh Siddhanta*. [14]

According to modern science in the process of taste perception, taste bud and sensory nerve carries sensation to brain. [15] According to *Ayurveda* the function of carrying sensation is a function of *Vata Dosha*. [16] Hence this function cannot be included in the functions of *Bodhaka Kapha*.

For taste perception it is mandatory that the substance dissolves in saliva, *Ayurveda* is also of same opinion that *Jala* is the *Yoni* of all *Rasa*, on the basis of these facts the experiment was carried out. Time for perception varies in some volunteers that can be attributable to physiological range or physiological variation.

Relative study of Different taste perceptions was done. It was observed that taste perception of powdered form of the 6 drugs was slightly delayed as compared to the time taken for the taste perception of aqueous solutions of the same 6 drugs (**p value** > 0.0001). In aqueous solution taste perception of *Amla* and *Katu Rasa Dravyas* was rapid (**p value** > 0.0001) as compared to powdered drug. In case of *Katu,Amla* and *Lavan Rasa* it was observed that the salivary secretions were more.

According to *Mahbhuta* predominance, time for perception differed. It is observed that *Rasa* with *Prithvi Mahabhoot* predominance shows delayed perception than *Rasa* with *Jala Mahabhoot* predominance. This can be associated with molecular binding of substance with taste bud and saliva.

Kapha Dosha is Jalamahabhoot predominant. Hence time taken for perception of *Lavan Rasa* is rapid as *Lavan Rasa* is also *Jala Mahabhoot* predominant.

Finally it may be concluded that *Bodhak Kapha* is physiologically and functionally similar to salivary content mucin. The predominance of *Mahabhoota* in substance is helpful in taste perception.

CONCLUSION:

The Taste perception of aqueous solution of a drug is quick as compared to the powdered form of the same drug in case of all *rasas* i.e. *Madhura, Amla, Lavana, Katu, Tikta* and *Kashaya Rasa.*

It can be concluded that for taste perception of any substance water content plays an important role. *Mucin* is a liquid substance present in saliva which is responsible for taste perception. *Bodhak kapha* is also having *jalamahabhoot* predominance is responsible for taste perception.

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REFERENCES

1. Banvarilal G, editor. Ashtaanga hridaya. In. Varanasi: Chaukhamba Orientalia; Sutrasthana 1/6; 2007. p. 5.
2. Ibid Sutrasthana 12/15; p.209.
3. Ibid Sutrasthana 12/17; p.210.
4. Ambikadutta S, editor. Sushruta Samhita. 11th ed. Varanasi: Chaukhamba Orientalia Publication; *Sootrasthaana* 21/14;1997.p.90.
5. R SS, editor. The Ayurved Sutram. In Yoganandanath Commentary. Mysore: Oriental liabrary; 1922. p. 82.
6. Chatterjee CC. Human Physiology Vol 1. In. Calcutta: Medical Allied Agency; 1987. p. 443.
7. Trikamji AJ, editor. Charaka Samhita. In Chakrapani Commentry. Varanasi: Chaukhamba Surbharti Prakashan; Sutrasthana 1/64. 2005. p.18.
8. Ibid 1/65. p.18.
9. Banvarilal G., editor. Ashtaanga hridaya. In. Varanasi: Chaukhamba Orientalia; Sutrasthana 9/2; 2007; p.166.
10. Trikamji A. J., editor. Charaka Samhita. In Chakrapani Commentry. Varanasi: Chaukhamba Surbharti Prakashan; Sutrasthana 26/66. 2005. p.148.
11. Dhyani S.C. Rasapanchaka, Varanasi: Chaukhamaba krishnadas Academy; 2008. p. 47.
12. Desai R. Ayurvediya kriyasharir. In. Nagpur: Baidyanath Ayurved Bhavan Limited; 2000. p. 416.
13. Dwarkanath C. Introduction to kayachiktsa. 3rd ed. Varanasi: Chaukhambha Orientalia; 1996.p.223.
14. Desai R. Ayurvediya kriyasharir. In. Nagpur: Baidyanath Ayurved Bhavan Limited; 2000. p. 558-559.
15. Chatterjee C.C. Human Physiology Vol 1. In. Calcutta: Medical Allied Agency; 1987. p. 452.
16. Desai R. Ayurvediya kriyasharir. In. Nagpur: Baidyanath Ayurved Bhavan Limited; 2000. p. 826-827

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IN VIVO STUDY OF EFFICACY OF *APARAJITA MULA* (ROOT OF *Clitoria ternatea*) IN SNAKE VENOM POISONING

Laxmikant Sangameshwar Paymalle *

* Lecturer, Dept of Agadtantra & Vyavaharayurved, Shri Gurudeo Ayurved College, Gurukunj Ashram, Mob No. 7588574019, E-mail :- lsp_1984@rediffmail.com

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IN VIVO STUDY OF EFFICACY OF *APARAJITA MULA* (ROOT OF *Clitoria ternatea*) IN SNAKE VENOM POISONING

***Corresponding Author**

Laxmikant Sangameshwar Paymalle
Lecturer,
Dept of Agadtantra & Vyavaharayurved,
Shri Gurudeo Ayurved College,
Gurukunj Ashram,
Mob No. 7588574019,
E-mail :-
lsp_1984@rediffmail.com

QR Code IJAAM

ABSTRACT:

Visha (Poison) is a substance which after entering the body disturbs natural and physiological function of the body. The poison most difficult to treat among animal poisons is that of the snakes. Snake bite is an important and serious medico legal problem in many parts of the world, especially in south Asian countries. It has been estimated that 5million snake-bite cases occur worldwide every year causing about 100,000 deaths. Currently the only scientifically valid treatment for snake venom envenomation is Serotherapy i.e. polyvalent anti-snake venom serum (PVASVS). Available first aid measures in snake-bites are application of tourniquet, incision and suction but their effectiveness is limited and required trained person for that. In *Ayurved* various plant species are mentioned as Anti- ophidian. But their effectiveness in snake-bite couldn't investigate scientifically. So to investigate effectiveness of plant species as a first aid measure i have selected in vivo study. "*Aparajita mula churna*" was selected for the study. As it is mentioned in '*Eksaragana*' in *Sushruta Samhitaa*, also in various *Granthas* and *Nighantus Aparajita* is described as remedy for snake venom poisoning.

Key Words: Serotherapy, Anti-snakes venom serum, Antiophidian, *Eksaragana*

INTRODUCTION

Visha (Poison) is a substance which after entering the body disturbs natural and physiological function of the body. The poison most difficult to treat among animal poisons is that of the snakes. In India the large number of people stays in villages. The number of villages is in mountainous region covered by dense evergreen forest in which poisonous snakes are very common. Hence the snake bite cases are more common in villages. Poor access to health services in these setting and in some instances a scarcity of Anti-venom, often leads to poor outcomes & considerable morbidity and mortality. Many victims fail to reach hospital in time or seek medical care after a considerable delay because of lack of transport facility. Some even die before reaching hospital. In the rural tropics victims are often bitten in an agricultural field or jungle and in many instances the bitten species is not identified, so the mortality rate is also high in snake poisoning cases.

Currently 'Poly valent Anti snake venom serum' [1] is used for snake bite but which is not available every time. In snake bite cases it is necessary to give immediate treatment, but it is not possible every time in villages due to lack of transport facility. So that the period between snake bite and actual treatment increases; this may be one of the causes for poor prognosis in such circumstances.
In *Ayurved* many remedies are indicated for snake bite, but experimentally they are not proved. So now it is the need of our science to introduce our medicines all over the world with the help of research and experimental study. '*Aparajita mula*' is one of the drug remedy mentioned in certain classics of Ayurveda [2,3] and *Nighantu*, for the treatment of snake poisoning, but its efficacy has not been proved with the help of modern parameters. Present research was conducted with an intention to evaluate the efficacy of '*Aparajita mula'* in cobra and Russell's snake envenomation in Albino-mice.

AIMS & OBJECTS

1) To study the efficacy of *'Aparajita Mula'* (Root of *Clitoria ternatea*) in cobra venom poisoning as a first aid measure. (In Vivo).
2) To study the efficacy of *'Aparajita Mula'* (Root of *Clitoria ternatea*) in Russell's viper venom poisoning as a first aid measure. (In Vivo)
3) To study whether there is any adverse drug reaction between *'Aparajita Mula'* & Poly Valent Anti Snake venom Serum (PVASVS)

MATERIALS & METHOD

I) Review of Literature

I) Vedic *Samhita, Sangraha, Nighantus* & Modern literature
II) New researches related to this topic

II) Collection of Cobra Venom & Russell's viper Venom

The lyophilized snake venom was procured from 'Halfkin's Institute Mumbai'.

III) Collection of Polyvalent Anti Snake Venom Serum (PVASVS)

Lyophilized PVASVS was procured from 'Halfkin Institute, Mumbai'.

IV) Preparation of drug & Standardization of drug:- [4]

The dried powder of *'Aparajita Mula'* was used for experiment.

V) CPCSEA Guidelines were followed as per Ethical Committee instructions & Institutional Ethics Committee Clearance (IEC) was obtained from National Toxicology Center, Pune in the month of September 2009.

V) In Vivo Efficacy of Plan Drug

Animal Species : Albino-mice.
Place of Experiment : National Toxicology Center, Pune
Sex of Animal : Albino mice of either gender
Avg. wt. of Animals : 20 gm.
No of Animals : 3 mice of each group
No. of groups : 8
Route of Administration:
Snake Venom - Intramuscular route
Aparajita Mula Churna - Oral route
PVASVS - I.V. route

Table No 1: Groups of Animals

Group – I	Only common cobra venom
Group – II	Common cobra venom + *Aparajita Mula*
Group – III	Common cobra venom + PVASVS
Group – IV	Common cobra venom + *Aparajita mula* + PVASVS
Group – V	Only Russell's viper venom
Group – VI	Russell's viper venom + *Aparajita Mula*
Group – VII	Russell's viper venom + PVASVS
Group – VIII	Russell's viper venom + *Aparajita mula* + PVASVS

Group I & V - Control Group
Group III & VII - Standard Group
Group II, IV, VI & VIII- Experimental Group

OBSERVATION

Animals were observed for the following parameters

1. Severity & duration of paralytic signs [5] of cobra venom injected mice.
2. Severity & duration of convulsion [6] of cobra venom injected mice.
3. Duration of survival in control group [7].
4. Duration of survival in standard group.
5. Duration of survival in experimental group.
6. Any observable adverse reaction in mice treated with PVASVS.

Table No 2: Appearance of signs (average time in minutes)

Parameter	I	II	III	IV	V	VI	VII	VIII
Appearance of Paralysis	130	53	-	-	-	-	-	-
Appearance of Convulsion	148.33	109.33	-	-	-	-	-	-
Duration of Survival Period	151.33	112.66	-	-	2018.33	1655	-	-

ANALYSIS & RESULTS

Table No 3: Appearance of Paralysis

Test	Common Cobra control Group Gr.I	Aparajita Mula Gr.II
Mean	130	53
SE	8.737	14.5433
Median	135	50
SD	15.133	25.1694
Minimum	113	30
Maximum	142	80
Sum	390	160
Count	3	3

Comparison by Unpaired t-test (two tailed)

t = 4.567
P = 0.0106(significant)

Time of appearance of paralysis was significantly decreased by 77 min in *Aparajita Mula Churna* group.

Table No 4: Appearance of Convulsion

Test	Common Cobra control Gr. I	Aparajita Mula Gr. II
Mean	148.3333	109.3333
Standard Error	0.8819	19.33
Median	148	90
Standard Deviation	1.528	33.4861
Minimum	147	90
Maximum	150	148
Sum	445	328
Count	3	3

Comparison by Unpaired t-test (two tailed)

t =2.015
P =0.1141(not significant)

Time of appearance of Convulsion was decreased by 39 min in *Aparajita Mula Churna* group, but not significantly.

Table No 5: Duration of Survival Period

Test	Common Cobra control Group Gr.I	Aparajita Mula Gr.II
Mean	151.333	112.66
Standard Error	1.20	19.1871
Median	152	95
Standard Deviation	2.08	33.2321
Minimum	149	92
Maximum	153	151
Sum	454	338
Count	3	3

Comparison by Unpaired t-test (two tailed)

t = 2.011

P = 0.1146 (not significant)

Duration of Survival was decreased by 38.67 min in *Aparajita Mula Churna* group, but not significantly.

Table No 5: Observation in Viper Venom group

Out Come	Russell's Viper control Group Gr. V	*Aparajita Mula* Gr.VI
Survived	-	2 (66.67%)
Died	3(100%)	1 (33.33%)
Total	3	3

Comparison by Fisher's Exact test (Two Tail)

P =0.4000 (not significant)

In Control group all mice i.e. 3(100%) mice are died and in *Aparajita Mula* group 1(33.33%) mice is died and 2(66.67%) mice are survived but this is statistically not significant.

- **Group III (Standard Common cobra group):-**
  - All three mice survived completely without showing any signs.
- **Group IV:-**
  - All three mice survived completely without showing any signs.
- **Group VII (Standard Russell's viper group):-**
  - All three mice survived completely without showing any signs.
- **Group VIII:-**
  - All three mice survived completely without showing any signs.

RESULTS

- In Common cobra control group (Gr. I) appearance of paralysis was observed after **130min** (average) and that of drug group (Gr. II) it was after **53min** (average) i.e. time duration of appearance of paralysis was decreased by **77min** in *Aparajita Mula Churna* group, which is statistically significant. **P value is 0.0106** (Two tail).
- In Common cobra control group (Gr. I) appearance of convulsions was after **148.33min** (average) and in drug group (Gr. II) it was after **109.33min** (average) i.e. time duration of appearance of convulsions was decreased by 39 min in *Aparajita Mula Churna* group, but P value is not statistically significant. P value is 0.1141(Two tail).
- In Common cobra control group (Gr. I) duration of survival was **151.33min** (average) & that of drug group (Gr. II) duration of survival was **112.66min** (average) i.e. duration of survival was decreased by 38.67min in *Aparajita Mula Churna* group, but P value is not statistically significant**. P value is 0.1146**(Two tail).
- In Common cobra venom + PVASVS (standard group III) all mice survived completely without showing any signs
- In Common cobra venom + *Aparajita Mula Churna* + PVASVS group (Gr. IV) all mice survived completely without showing any signs. No adverse interaction between *Aparajita Mula Churna* and PVASVS was seen.
- In Russell's viper venom group (Gr. V) of survival was ***2018.3min*** (average) & In drug group (Gr. VI) only one(33.34%) mice was died and survival period was **1655min** and Two (66.67%) mice were survived, but which is statistically not significant. ***P value is 0.4000*** (Fisher's exact Test).
- In Russell's viper venom + PVASVS group (Gr. VII), all mice survived without showing any signs.
- In Russell's viper venom + *Aparajita Mula Churna* + PVASVS group (Gr. VIII), all mice survived without showing any signs. No adverse interaction between *Aparajita Mula Churna* and PVASVS was seen.

CONCLUSION

1) ***Aparajita Mula Churna*** **is not useful as a first aid measure in Common cobra Venom because,**
   - It does not delays the onset of symptoms and survival period in Common cobra venom poisoning,
   - Symptoms appear earlier when *Aparajita Mula* Churna was given after ingestion of Cobra Venom.

   Hence we can say that, adverse drug reaction appear due to administration of

Aparajita. So it is unfair to use *Aparajita Mula* Churna as a first aid measure in Cobra venom poisoning.

2) ***Aparajita Mula Churna*** **is not useful as a first aid measure in Russell's viper Venom because,**

- It does not delay the survival period in Russell's viper venom poisoning.
- Though 66.67% mice are survived but which is statistically not significant.

P Value (Fisher's exact test) = 0.4000 (Considered not significant)

REFERENCES:-

1. Dr. C. K Parikh, Animal Poison, Textbook of Medical jurisprudence, Forensic Medicine &Toxicology,6th edition, CBS Publishers & distributors, New Delhi110002 1999, p. 9.47
2. Ambikadatta Shastri: Sushrut Samhita, Kalp sthan, Sarpadanshtavisha chikitsa adhyay, 5/84-86, 12th edition, Chaukhambha Publication, New Delhi 2001;p.53
3. Joshi Y.G., Charak Samhita, Chikitsa Sthan, Visha Chikitsa 23/95 2nd edition, M. Vaidyamitra Publication, Pune, 2005, p.508
4. The Ayurvedic Pharmacopoeia of India Part-1, vol-2. 1st Edition, The controller of Publication civil Lines Delhi 110054, 1999, p.11.
5. Singhal S. K, Toxicology at a Glance, Snakes, 8th edition, The national book depot, Mumbai 400012, 2012, p.79
6. Singhal S. K, Toxicology at a Glance, Snakes, 8th edition 2012, The national book depot, Mumbai 400012. p.79
7. Parikh C.K, Textbook of Medical jurisprudence, Forensic Medicine &Toxicology, Animal Poison, 6th edition, CBS Publishers & distributors, New Delhi110002; 1999, p.9.46

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PHARMACOGNOSTICAL EVALUATION OF *APAMARGA* (*Achyranthes aspera* Linn.)

Hasmukh R Jadav,[1]* Galib,[2] Harisha C.R.,[3] Prajapati P.K.[4]

1. * MD Scholar, dept of Rasashastra & Bhaishajyakalpana, IPGT & RA, Jamnagar, Email - hasmukhjadav005@gmail.com
2. Assistant professor, Dept of Rasa Shastra & Bhaishajyakalpana, IPGT & RA, Jamnagar
3. Head, Pharmacognosy lab, IPGT & RA, Jamnagar
4. Professor and Head, Dept of RS & BK, IPGT & RA, Jamnagar

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PHARMACOGNOSTICAL EVALUATION OF *APAMARGA* (*Achyranthes aspera* Linn.)

*Corresponding Author

Hasmukh R Jadav
MD Scholar, dept of
Rasashastra &
Bhaishajyakalpana,
IPGT & RA, Jamnagar, Email -
hasmukhjadav005@gmail.com

QR Code IJAAM

ABSTRACT:
Apamarga (*Achyranthes aspera* Linn.) is a well known herb useful in different diseases. In detail pharmacognostical profile of this plant is not found. Considering this, it has been attempted to evaluate detailed pharmacognostical profile of *Achyranthes aspera* Linn. Whole plant was collected in the month of November 2012; shade dried; pulverized; sieved through 80 mesh and preserved in an airtight glass container. Pharmacognostical evaluation shows xylem composed of tracheids, fibers and parenchyma in transverse section of root, parenchymatous cells contain rosettees of calcium oxalate crystals in transverse section of stem, simple worty trichome and annular vessels in powder of leaf, transverse section of seed contains parenchyma cells greatly consisting oil globules, aleuron grains, some of the cells filled with yellow brown content and also prismatic crystals of calcium oxalate. The current work appears to be the first of its kind and can be considered as reference standard for future studies.

Key Words: *Apamarga*, Root, Stem, Leaf, *Tandula*, *Achyranthes aspera*

INTRODUCTION

Knowledge of herbs has been handed down from generation to generations for thousands of years.[1] Herbal drugs constitute a major part in all traditional systems of medicines. Plants above all other agents have been used for medicine from time immemorial because they have fitted the immediate personal need, easily accessible and inexpensive.[2] According to the WHO more than 80 % of the world's population relies on traditional herbal medicine for their primary health care.[3] World Health Organization has made an attempt to identify all medicinal plants used globally and listed more than 20,000 species.[4] Plants continue to serve as possible sources for new drugs and chemicals derived from various parts of plants.[5] In recent time there has been a marked shift towards herbal cures because of the pronounced cumulative and irreversible reactions of modern drugs. However, due to over population, urbanization and continuous exploitation of these herbal reserves, the natural resources along with their related traditional knowledge are depleting day by day.[6]

Achyranthes aspera Linn (Amaranthaceae) is an important medicinal herb found as a weed throughout India. Though almost all of its parts are used in traditional systems of medicines; seeds, roots and shoot are the most important parts which are used medicinally. Till date, pharmacognostical profile of different parts of *Apamarga* is not found reported. Considering this, it is attempted to evaluated pharmacognosy of individual parts of *Apamarga*.

MATERIALS AND METHODS

Collection: Fresh *Apamarga* (*Achyranthes aspera* L.) was collected in the month of November 2012 as per collection standards. The plant specimen was authenticated by the Pharmacocgnosist. All parts of *Apamarga* like Leaf, Stem, Root, Flower, Fruit and Seed were separated; shade dried; pulverized; sieved through 80 sieves and preserved in an airtight glass container.

Morphology: The collected raw material of plant was identified and authentified by studying their characters systematically as per the methods described in the textbooks of pharmacognosy. The specimen was observed as such with naked eye.[7]

Macroscopic and microscopic evaluation: Thin free hand transverse sections of fresh parts of *A.aspera* taken by maceration method.[8] For identification of various contents, they were treated with phloroglucinol and hydrochloric acid.[9] Photomicrographs were taken by using canon digital camera attached to Carl Zeiss Trinocular microscope.

Organoleptic characters: Colour, taste, odour and powder nature were recorded by sensory characters.[10]

Powder Microscopy: Small quantity of powder studied first with distilled water then stained with phlorolucinol and Conc. Hcl Microphotographs were taken.[11]

RESULTS AND DISCUSSION

Root

Macroscopy: Cylindrical tap root, slightly ribbed, 0.1-1.0cm in the thickness, gradually tapering, rough due to presence of some root scars, secondary and tertiary root present, yellowish brown; odour, not distinct.

Transverse section of Root: Transverse section of root showed single layered epidermis, followed by 6-19 layered, rectangular, tangentially, elongated, thin-walled cork cells, followed by 5-6 successive alternating more or less concentric rings of secondary vascular tissue and the conjunctive parenchyma. Arcas or patches of phloem and conjunctive parenchymatous tissues were much smaller and hence appear embedded in the xylem mass in the stem while these were longer and form alternate and concentric rings with the xylem. Xylem composed of tracheids, fibers and parenchyma; vessels with both simple and bordered pits. Pith was absent.

Powder microscopy: Organoleptic characters of Root powder was showed in table no 1.
Microscopic characters of root powder showed cork in transverse view, cork in surface view, prismatic crystals of calcium oxalate, fragment of border pitted vessels, prism along with oil globules, fibres passing through medullary rays, simple fibres, border pitted vessels and yellow brownish content (Tannins).

Stem

Macroscopy: 0.3-0.5cm in cut pieces, yellowish brown, erect, branched, cylindrical, hairy, solid, and hollow when dry.

Transverse section of Stem: Stem showed 6-10 prominent ridges which diminish downward up to the base where it becomes cylindrical. The epidermis was single layered externally with a thick cuticle. The cortex was composed of 6-10 layers of parenchymatous cells; many of them contain rosettees of calcium oxalate crystals. Vascular bundles lie facing reach ridges capped by pericyclic fibers, transverse section of mature stem shows lignified, thin-walled cork cells; pericycle a discontinuous ring of lignified fibers; vascular tissues show anomalous secondary having 4-6 incomplete rings of xylem and phloem. The central part of the stem was occupied by pith in which two medullary bundles were found either separate throughout or fused in some cases.

Powder microscopy: Organoleptic characters of Stem powder was showed in table no 1.
Microscopic characters of stem powder showed rossate crystals, annular vessels, fragment of border pitted vessels, septed fibres, fragment of parenchyma cells, short warty trichomes along with starch grain, short warty trichoms along with hilum, border pitted vessels and cork in surface view.

Leaf

Macroscopy: Leaves simple, subsessile, exstipulate, opposite, decussate, wavy margin, obovate, slightly acuminates and pubescent due to the present of thick coat of long simple hairs.

Transverse section of Leaf:
Petiole: Transverse Section of petiole Showed crescent-shaped outline, having ground tissues consisting of thin-walled, parenchymatous cells containing rosettee crystals of calcium oxalate; 4-5 vascular bundle situated in mid region.

Midrib: Transverse section of leaf throw mid rib showed a single layered epidermis, on both surfaces; epidermis followed by 4-5 layered Collenchyma cells on upper side and 2-3 layered on lower side; ground tissue consisting of thin walled, parenchymatous cells had number of vascular bundles; each vascular bundle shows below the xylem vessels, thin layers of cambium, followed by phloem and a pericycle represented by 2-3 layers of thick-walled, non-lignified cells; rosettee crystals of calcium oxalate found scattered in ground tissues.

Lamina: Showed single layered, tangentially elongated epidermis cells covered with thick cuticle having covering trichomes which were similar to those of stem found on both surface; mesophyll differentiated into palisade and spongy parenchyma; palisade 2-4 layered of thick parenchyma larger, slightly elongated in upper, while smaller and rectangular in lower surface; spongy parenchyma 3-5 layers thick, more or less isodiametric parenchymatous cells; idioblast containing oxalate distributed in palisade and spongy parenchyma cells; stomata anisocytic and anomocytic in both surface.

Powder microscopy: Organoleptic characters of Leaf powder was showed in table no 1.
Microscopic characters of leaf powder showed rosette crystals, prismatic crystals, simple warty trichome, fragment of annular vessels, yellow brownish content (Tannins), trichomes with lumen, trichomes without lumen, stomata anomocytic, lignified fibres and Epidermal cells.

Flower

Macroscopy: Inflorescence - dense axillay and terminal spikes, spiny flowers, bracteates; Bract - scaly, membranous, scarious; bracteoles - membranous. Flower bisexual, actinomorphic, pentamerous, hypogynous and very small. Perianth – 5 membranous green to pink lanceolate, fimbricate. Stamens - five filament, long; anthers - dorsi fixed. Gynoecium - monocarpellary syncarpous, superior, unilocular with basal placentation style1; stigma - capitate. Fruit article seeds with cured embryo and mealy endosperm.[12]

Transverse section of Flower:

Perianth: Transverse section of perianth showed somewhat compressed and boat shaped measures about 0.3-0.4 mm. Outer layer covered with cells compactly arranged barrel shaped epidermal cells without inter cellular spaces; lower side cells filled with yellow brownish content (may be tannin). The ground tissue was divided into upper loosely arranged barrel shaped parenchyma cells and lower part consist compactly arranged parenchyma cells with chlorophyll pigments and many rosettee crystals of calcium oxalate crystals. On either side of the edges compactly arranged collenchymas cells give the mechanical support for the ground tissue. Vascular bundles were open and collaterally distributed at the lower side; the ground tissue was made-up off few xylem elements and phloem.[12]

Androecium: Squashed androecium shows many papillose cells with prismatic and rosettee crystals of calcium oxalate, fibres, stomata and spiral vessels, multi cellular glandular trichomes, oil globules and numerous, rounded, polyhedral pollen grains. Each pollen grain consist two layers, extine and intine. Extine was somewhat cutinized, which often provide with spinous outgrowths. Intine was thin and delicate. Cells of the filament were parenchymatous and longitudinally arranged, covered with many multicellular trichomes.[12]

Gynoecium: It was monocarpellary syncarpous; Ovary superior, mace in shape. Style tubular, Colour simple reddish. Section composed of parenchyma cells, prismatic crystals of calcium oxalate, oil globules, vascular strands and many polyhedral pollen grains adhering on the walls of the tube. Stigma - with many pappillose, measures about 0.4 mm, cells filled with nectar and tannin content.[12]

Powder microscopy: Organoleptic characters of Flower powder was showed in table no 1.
Microscopic characters of flower powder showed Prismatic crystals of calcium oxalate, Starch grains, Oil globules and many polyhedral pollen grains.[12]

Fruit

Macroscopy: An indehiscent dry utricle enclosed within persistence, perianth, and bracteoles. Minute egg shaped, shining and brownish green in colour. Ovule - single chambered, monocarpellary with basal placentation, outer most cells reddish and cup shaped with some oil globules. Inner single layered stone cells lead into loosely arranged parenchyma cells. Cotyledons - two rich in starch grains; Embryo – very minute.[12]

Transverse section of Fruit: Transverse section of the fruit showed that the outer most Pericarp made up off single layered epidermal cells with thick cuticle and some cells leads in to multicellular glandular trichomes. The Pericarp followed by testa, perisperm, inner endosperm cotyledons and the radical.

Powder Microscopy: Organoleptic characters of Fruit powder was showed in table no 1.
Microscopic characters of fruit powder showed Prismatic crystals of calcium oxalate, Oil globules, Epidermal cells, Multi cellular glandular trichomes, tannin content, simple and compound starch grain and spiral vessels.[12]

Seed

Macroscopy: Sub-cylindric, truncate at the apex, round at the base, endospermic, brown.

Transverse section of Seed: Transverse section of seed shows outer most single layered Testa consists rectangular shaped compactly arranged parenchyma cells. Perisperm cells loosely arranged somewhat elongated parenchyma cells greatly consisting oil globules, aloerone grains, some of the cells filled with yellow brown content and also prismatic crystals of calcium oxalate. Endospem made up off compactly arranged parenchyma cells loaded by starch grains and oil globules. Cotyledons two consisting parenchyma cells rich with starch grains.

Powder Microscopy: Organoleptic characters of Seed powder was showed in table no 1.
Microscopic characters of seed powder showed prismatic crystals, oil globules, endosperm cells along with aleurone grains, Fragment of endosperm cells along with aleurone grains, fibres with luman, Endocarp cells, epidermal cells with oil globules, yellow brown contant may be tannins.

Panchanga (Whole plant)

Powder Microscopy: Organoleptic characters of Panchanga (Whole plant) powder was showed in table no 1.

Microscopic characters of *Panchang* (Whole plant) powder showed covering trichome, glandular trichome, calcium oxalate crystals of the stem, vessels of the roots showing bordered pits, pitted vessels of the stem, tracheid of the stem with simple pits, Prismatic and Rosettee crystals, Simple fibres, Lignified fibres, Yellow brownish content (tannins), Oil globules, Annular vessels, Short warty trichoms along with starch grain, Stomata anomocytic, Epidermal cells, Polyhedral pollan grains and Spiral vessels.

DISCUSSION

Plant identified *Achyranthes aspera Linn.* Belongs to Amaranthaceae family is herb from all over the waste places of India. Stem angular, ribbed, simple or branched from the base, leaves thick ovate – elliptic or obovate – rounded, flowers greenish white, numerous in axillary or terminal spikes, seeds subcylindric, truncate at the apex, rounded at the base, reddish brown.

Transverse section of root showed that 5-6 successive alternating more or less concentric rings of secondary vascular tissue and the conjunctive parenchyma, vessels with both simple and bordered pits were specific characters of the Amaranthaceae specially *Apamarga* Distinctive characters cork in transverse and surface view, prismatic crystals of calcium oxalate, fragment of border pitted vessels, fibres passing through medullary rays and border pitted vessel were identified.

Transverse section of stem showed that lignified, thin-walled cork cells; pericycle a discontinuous ring of lignified fibers; vascular tissues show anomalous secondary having 4-6 incomplete rings of xylem and phloem were important characters observed in the stem. Distinctive characters, rossate crystals, annular vessels, fragment of border pitted vessels, short warty trichoms were identified.

Transverse section of leaf throw mid rib showed a single layered epidermis, on both surfaces; epidermis followed by 4-5 layered Collenchyma cells on upper side and 2-3 layered on lower side; leaves idioblast containing oxalate distributed in palisade and spongy parenchyma cells; stomata anisocytic and anomocytic in both surface. Important character of leaf powder showed rosettee crystals, prismatic crystals, simple warty trichome, fragment of annular vessels, yellow brownish contants were observed.

Transverse section of perienth showed outer layer covered with cells compactly arranged barrel shaped epidermal cells without inter cellular spaces; lower side cells filled with yellow brownish content, Squashed androecium showed many papillae cells with prismatic and rosettee crystals of calcium oxalate, stomata and numerous, rounded, polyhedral pollen grains, gynoecium showed many polyhedral pollen grains adhering on the walls of the tube. Stigma - with many pappillose. Important characters of flower powder showed Prismatic crystals of calcium oxalate, Starch grains, Oil globules and many polyhedral pollen grains.

Transverse section of the fruit showed that the outer most Pericarp made up off single layered epidermal cells with thick cuticle and some cells leads in to multicellular glandular trichomes. Distinctive characters of fruit powder showed Prismatic crystals of calcium oxalate, Oil globules, Epidermal cells, Multi cellular glandular trichomes, Simple and compound starch grain and Spiral vessels.

Transverse section of seed showed outer most single layered Testa consists rectangular shaped compactly arranged parenchyma cells, perisperm cells loosly arranged somewhat elongated parenchyma cells, endospem made up off compactly arranged parenchyma cells loaded by starch grains and oil globules. Important characters of Seed powder showed Endosperm cells along with aleurone grains, Fragment of endosperm cells along with aleurone grains, Fibres with lumen, fragments of Endocarp cells.

Microscopic characters of *Panchang* (whole plant) powder showed glandular trichome, , bordered pitted vessels, Prismatic and Rossate crystals of calcium oxalate, Lignified fibres, Oil globules, Short warty trichoms along with starch grain, Stomata anomocytic, Polyhedral pollan grains and Spiral vessels.

CONCLUSION

Pharmacognostical study of *A. aspera* Linn. provide specific parameters that will be useful in the individual characteristics and also as well as whole powder adulterant in identification and authentication of the drug. Prismatic and Rosettee crystals, Simple fibres, Lignified fibres, Pollen grain this helps in further research on flowers and seeds.

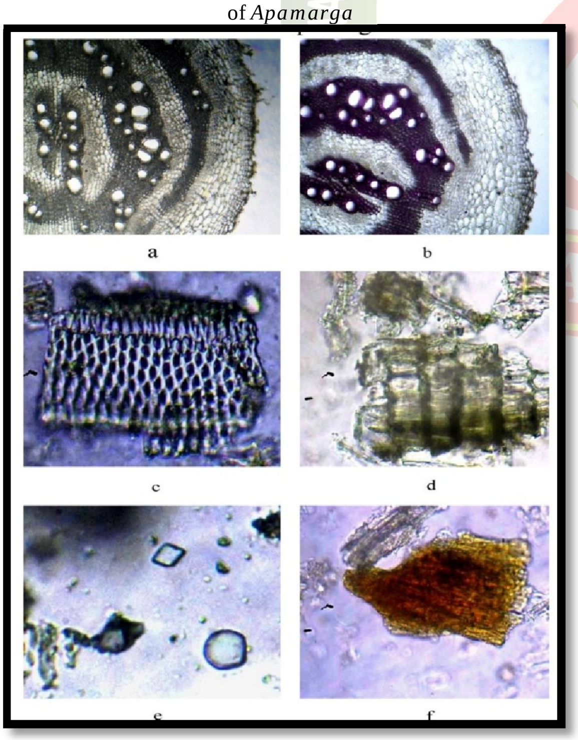
REFERENCES

1. Bown D. Encyclopaedia of Herbs. The Royal Horticulture Society: Dorling Kindersley Ltd; 14.
2. Mukherjee PK. Quality control of herbal drugs. Business Horizon Pharmaceutical Publishers; 2008.p. 13.
3. Vijayan A, Liju VB, Reena JV, Parthipan B, Renuka C. Traditional remedies of *Kani* tribes of Kottoor reserve forest, Agasthyavanam, Thiruvananthapuram, KeralaIndian: Ind J Trad Know 2007;6(4):589-594.
4. Pandey MM, Rastogi S, Rawat AKS. Indian Herbal Drug for General Healthcare An Overview. The Int J Alt Med 2008; 6(1):1-10.
5. Tijani Y, Uguru MO, Salawu WA. Anti-pyretic, anti-inflaamatory and anti-diarrhoel properties of Faidherbia albida in rats. African J. Biotech 2008;7(6):696-700.
6. Pande PC, Tiwari Lalit, Pande HC. Ethnoveterinary plants of Uttaranchal- A review: Ind J Trad Know 2007; 6(3):444-458.
7. Khandelwal KR. Practical Pharmacognosy - Techniques and Experiments. 9th ed: Nirali Prakashan 2002; p.24-29,149-156.
8. Wallis TE. Textbook of Pharmacognosy. 5th ed. New Delhi: CBS Publishers;1985.
9. Trease GE, Evans WC. Pharmacognosy. 12th ed. UK: Baillier Tindall Can Macmillan Publishers 1983; p. 95-99, 512-47.
10. Khandelwal KR. Practical and Pharmacognosy Techniques and experiments. 17th ed: Nirali prakashan 2008; p.10-19.
11. Trease GE, Evans WC. Pharmacognosy. 12th ed. UK: Baillier Tindall Can Macmillan Publishers 1983; p.95-99, 512-47.
12. Jadav HR, Ruknuddin Galib, Prajapati PK, Harisha CR. Pharmacognostical study on flowers and fruits of *Apamarga* (*Achyranthes aspera* Linn.). Int J Green Pharm 2013;7(2):136-139.

Table 1 Contains Organoleptic characters of powder of each parts and whole plant of *Apamarga*.

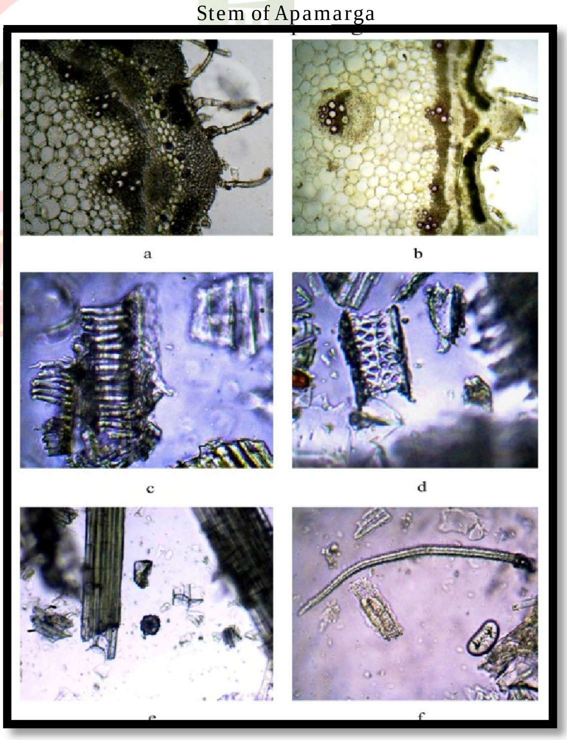
Parts	Colour	Odour	Touch	Taste
Stem	Creemish white	NIL	Coarse	NIL
Root	Creemish white	Astringent	Coarse	Light *Kashaya*
Leaf	Dark green	Astringent	Coarse	*Kashaya*
Flower	Whitish yellow	Specific	Coarse	Astringent
Fruit	Whitish yellow	Specific	Coarse	Astringent
Seed	Whitish yellow	Specific	Coarse	Astringent
Whole plant	Creemish yellow	Astringent	Course	*Kashaya*

Figure 1 Transverse section and Powder Microscopy of Root of *Apamarga*



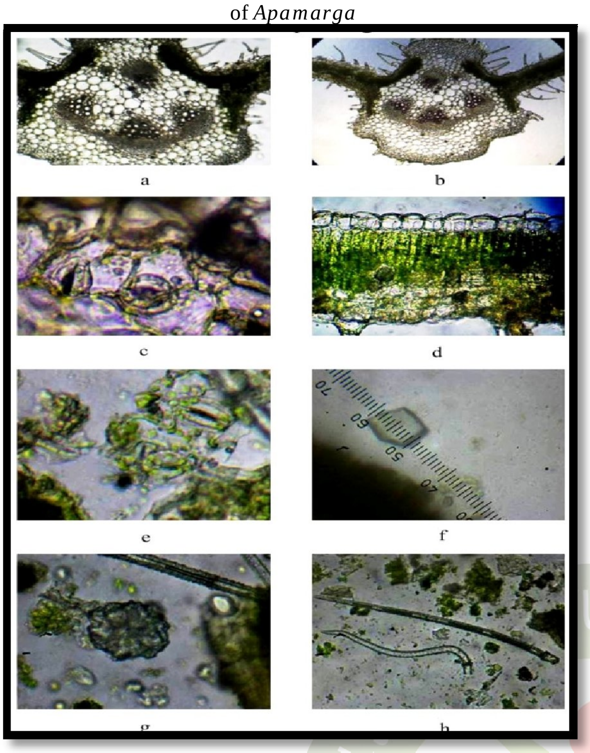
a- Transverse section of unstained Root; b- Transverse section of stained Root ; c- Border pitted vessels; d- Cork in surface view
e- Prismatic crystals with starch grain; f - Tannin content

Figure 2 Transverse Section and Powder Microscopy of Stem of Apamarga



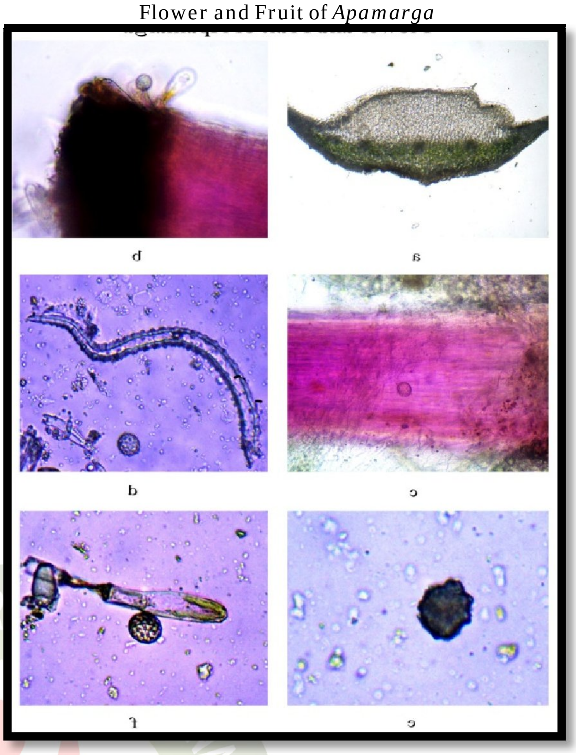
a- Transverse section of unstained stem; b- Transverse section of stained stem; c- Annular vessels; d- Border pitted vessels; e- Rosette and prismatic crystals with septet fibers; f- Warty trichoms with starch grain with hylum

Figure 3 Transverse Section and Powder Microscopy of Leaf of *Apamarga*



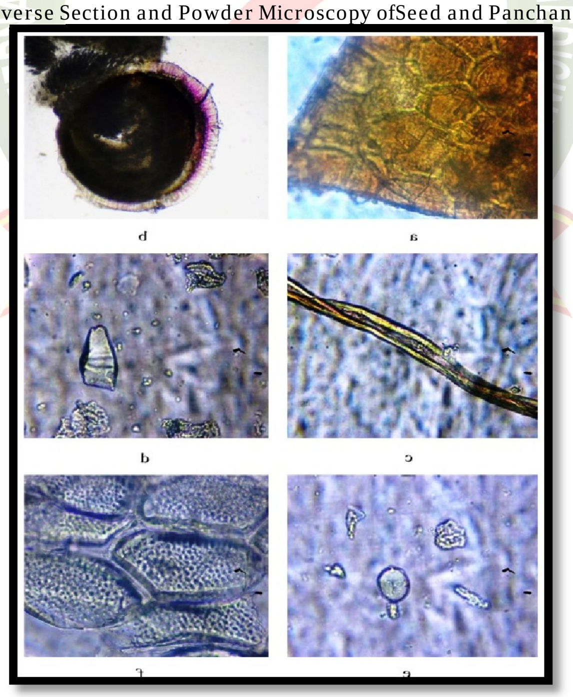
a- Transverse section of unstained Leaf; b- Transverse section of stained Leaf; c- Anomocytic stomata; d- Spongy parenchyma along with rosette crystals; e- Anomocytic stomata; f- Prismatic crystals; g- Rossat Crystals; h- warty trichoms with starch grain with hilum

Figure 4 Transverse Section and Powder Microscopy of Flower and Fruit of *Apamarga*



a- Transverse section of perienth; b- Gynoecium along with pollen grain; c- Style with p0llen grain; d- Fibers; e- Rosette Crystals; f- Pollen grain, Grandular trichoms with prismatic crystals

Figure 5 Transverse Section and Powder Microscopy ofSeed and Panchang of *Apamarga*



a- Epicarp cells**; b-** Fibers with white luman; c- Transverse section of Seed; d- Prismatic crystal; e- Starch grain; f - Pitted Paranchyma

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#401/8-A, 4th Floor, Shiv Shrishti Apt.
Nardas Nagar, TP Rd., Bhandup (W), Mumbai – 400078
E:mail-editorijaam@gmail.com, Web- www.ijaam.org